DOCUMENT RESUME

ED 326 491 SP 032 699

AUTHOR Concepcion-Lutz, Paz, Comp.
TITLE Community Participation in Nutrition Education. A Training Manual. Nutrition Education Series Issue 17.
INSTITUTION United Nations Educational, Scientific, and Cultural Organization, Paris (France). Div. of Science, Technical and Environmental Education.
PUB DATE 88
NOTE 118p.
PUB TYPE Guides - Non-Classroom Use (055)

EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Behavior Change; Community Attitudes; *Community Involvement; Developing Nations; *Disease Control; *Family Health; *Health Education; *Hygiene; Inservice Teacher Education; *Nutrition Instruction; Preservice Teacher Education; Teacher Effectiveness
IDENTIFIERS *Sierra Leone

ABSTRACT

This training manual is a compilation of the concepts, body of knowledge, and processes gained from a pilot project developed at Bunumbu Teachers College in Sierra Leone. The content and suggested activities refer specifically to Sierra Leone. The manual emphasizes community participation in curriculum development for health and nutrition education at all levels. Part 1 deals with community participation in nutrition education. Part 2 discusses teaching and learning in community participatory activities, from primary school through teacher education. Part 3 presents training modules for teachers. Much of the material came from papers, comments, or outcomes from seminars and curriculum writing workshops in community development, health, and nutrition. Appendices include a community nutrition survey for use with families; a form for entering the nutrition status of each child; checklist, pretest, and lesson outlines for the mothers' workshop in nutrition; and a scope and sequence table for primary home economics. (JD)

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Nutrition Education Series
Issue 17

Community Participation in Nutrition Education A Training Manual

Unesco

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Nutrition Education Series
Issue 17

Community Participation in Nutrition Education A Training Manual

compiled
by
Paz Concepcion-Lutz

Ministry of Education, Cultural Affairs and Sports
in collaboration with the
Institute of Education
and Assisted by UNDP/UNESCO Project:
The National Dissemination of an Innovative Primary
School Curriculum Adapted to the Local Environments

Unesco
Division of Science
Technical and
Environmental Education
ED.88/WS/53
Paris, 1988

CONTENTS

		Page
Preface		ii
Introduction	The Bunumbu Context	1
Part One	**COMMUNITY PARTICIPATION IN NUTRITION EDUCATION**	7
Chapter I	Health and Nutrition in Community Education	9
Chapter II	Knowing Your Community	13
Chapter III	Understanding Community Participation	17
Chapter IV	The Roles of the Teacher as Community Animateur	21
Chapter V	The Community Organization Approach	25
Part Two	**TEACHING-LEARNING IN COMMUNITY PARTICIPATORY ACTIVITIES**	27
Chapter VI	School Community Health Action Programmes	29
Chapter VII	Pre-Service and In-Service Teacher Education	31
Chapter VIII	Integrated Health and Nutrition in Primary Schools	33
Chapter IX	Evaluating Teaching-Learning Effectiveness	39
Part Three	**TRAINING MODULES FOR TEACHERS**	41
Module 1	Nutrition in Community Education	43
Module 2	Nutritional Requirements for Specific Groups	47
Module 3	Infant Nutrition	59
Module 4	Nutrition and Growth	69
Module 5	Local Foods and Eating Habits	79
Module 6	Preparation and Preservation of Foods	87
Module 7	Improved Nutrition Through Home Gardens	93
Module 8	Water, Health and Sanitation	103
References		115
Appendices		
Appendix I	Community Nutrition Survey	117
Appendix II	Nutrition Status of the Child	119
Appendix III	Mothers' Workshop in Nutrition: Questionnaire.... Pretest....Lessons	121
Appendix IV	Scope and Sequence for Primary Home Economics	126

PREFACE

Among the key issues and problems facing nutrition education today, pertinent to Sierra Leone, are: (a) how to improve classroom nutrition teaching at primary level (b) how to incorporate effectively nutrition education into pre-service and in-service teacher training (c) how to link in-school learning and out-of-school educational activities (d) how to assess and evaluate nutrition teaching and learning and (e) how to promote nutrition education in the community. The Sierra Leone Government/ Ministry of Education, as of 1985, has addressed these issues, utilizing the outcomes of the Bunumbu Project (1974 - 1982) experiment in the UNDP/ UNESCO assisted project called "National Dissemination of an Innovative Primary School Curriculum Adapted to the Local Environments".

This training manual is a compilation of the concepts, body of knowledge and processes which were gained from the Bunumbu experience. It emphasizes community participation in curriculum development in health and nutrition education, both for primary schools and teacher education, and consists of three parts. Part I deals with Community Participation in Nutrition Education. Part II discusses Teaching - Learning in Community Participatory Activities, while Part III contains Training Modules for Teachers. Much of the materials were contributions of either papers or comments and outcomes from seminars and several curriculum writing workshops in community development, health and nutrition.

It is hoped that teachers and teachers-to-be, through the use of this manual would be better equipped to influence children's and family's food and nutrition habits, improve the dietary related behaviour, and promote the health status of the communities that they serve.

The financial assistance towards the preparation of this document and their related activities, from the Nutrition and Health Education Division of Science, Technical and Environmental Education, UNESCO and from UNICEF, Sierra Leone, is gratefully acknowledged. But all the materials put together and their try-out would not have been possible without the cooperation and involvement of the primary teachers in several primary schools, lecturers and staff of the Teacher Colleges and the Institute of Education during the production and training workshops related to this Manual. To all of these colleagues in education, who are too many to mention, and to the about 120 mothers in the five regional centres of the Dissemination Project, who participated effectively in the workshops, a special thanks is extended. Grateful appreciation is also given to other agencies in Sierra Leone, like the World Food Programme-FAO, Catholic Relief Services, PLAN International, Peace Corps, the Rural Water Supply Unit of the Ministry of Energy and Power, and the Resource Centre of Sierra Leone Home Economics Association, for their cooperation and support. The permission granted by WHO to use in part, sources in their related publications is herein acknowledged with thanks.

Finally, credit goes to Miss Leticia Gbenga for typing this manuscript as well as the other materials used in the preparation of this manual, and to Mr. Alusine Bangura for the illustrations in the visual aids.

Paz C. Lutz, Ph. D.

The views expressed in the text are those of the authors and not necessarily those of Unesco.

INTRODUCTION: THE BUNUMBU CONTEXT

Bunumbu Teachers College in Sierra Leone, from 1974 to 1982 was the center of a UNDP/UNESCO assisted project, called "Training of Primary School Teachers for Rural Areas". The project was conceived to support the educational development policy of giving priority to primary education with a view of improving conditions of rural living. Among its many aims, the Five-Year National Development Plan from 1974 to 1979 (which was extended to an additional three years) included the following:

> "To accelerate the expansion of Primary Education, especially as regards teacher education.
>
> To make the content of education in all subsectors more relevant to the economic and social needs of the country.
>
> To raise the level of literacy, by both primary and out-of-school education."

Sierra Leone's development problems suggest that it is a situation which is in many respects analogous to that of its sister African countries, such as:

- 85% of a total population of 3.0 million live in rural areas.
- roughly 90% of adults living in rural areas are illiterate and have little or no education or organized non-formal education.
- 75% of the working population are employed in subsistence level agriculture.
- there is roughly 60% wastage from primary to secondary levels of education
- some 60% of primary school teachers have no teaching qualification and the remainder are in great need of in-service training
- teachers' colleges are unable to supply the demand for more teachers to handle increased enrolment
- the academic curriculum is geared to promoting upward mobility within the school system and eventually higher education
- roughly 40% of the primary school age group are actually enrolled and in some rural areas, even as low as 10%.

In the Bunumbu project, community education in both formal and nonformal systems was aimed towards improving the quality of life in the surrounding villages, by promoting the people's ability to respond positively to their life situation, by working together to improve the quality of their lives and by enhancing the roles of schools, to be more responsive to the needs of the community and make the home-school relationship an integrated one. It is aimed at improving the quality of primary education system through a number of innovative educational practices.

Innovations in the Bunumbu Project

As a pilot project, it initiated into twenty villages within a perimeter with 20 miles radius, a reform in the primary school curriculum by introducing practical subjects like Home Economics, Practical Arts, Agricultural Science and Community Development. Emphasis was placed upon integrating subjects through cross subject approach, and developing systematic units of instruction, including classroom evaluation techniques and providing teacher guidelines for covering the units and syllabuses.

Related to this, was its in-service training programme, which emphasized curriculum development. The essence of this innovation is that curriculum is developed at the "grass roots" by the users - the classroom and student teachers,

guided or supervised by subject specialists and by teacher trainers. Teachers participating in curriculum writing workshops received lectures and guidelines in producing instructional units and demonstrations in new teaching techniques. The curriculum writing workshops updated teacher skills in planning lessons through use of behavioural objectives, local resources and materials, improving teaching methods and learning processes, as well as techniques for evaluation.

The teachers work in "subject panels" and the materials they produce are field tested with their own pupils. While teachers grow professionally with updated content and methodology, there is a continuous programme of curriculum development. Fig 1 shows the model of the Bunumbu process for curriculum development.

The guidelines for writing units and syllabuses emphasized the cross subject approach and promoted an integrated exchange among teachers and lecturers of various disciplines. Close relations between the Bunumbu Teachers College and the primary schools were promoted through participation of lecturers and teachers in the workshops.

By 1982, teacher-designed primary school syllabuses had been prepared for all subjects, including Home Economics. Of the more than 150 instructional units, about 20 of the units are in home economics and more than half of these, deal with topics related to foods, nutrition and child care or mother craft. The emphasis on nutrition education, within the frame work of the home economics syllabus of Bunumbu Teachers College centered on the nutrition and health problems as it affected these small, remote, agricultural villages. More importantly, in designing educational programmes that meet community problems and stimulate people to plan and implement developmental activities, the Home Economics department with the collaboration of the Health Education department undertook a "reaching out" process that involved not only the pre-service and in-service teachers and pupils, but also, the community. The instructional materials facilitated pupils' understanding and knowledge, promoted teachers' dialogue with community members and integrated community participation in the school curriculum. By promoting health and nutrition education at the primary school level, the Bunumbu project had envisaged that with community involvement, the school population would improve its nutritional status and health behaviour, thereby, promoting the health status of their respective communities.

With regard to its teacher education programme, the project sought to develop a new breed of teachers, who as community animateurs, change agents and facilitators can contribute to the transformation of rural communities and improve their quality of life. The content and approach of the teacher education curriculum in Bunumbu Teachers College were made consistent with the basic philosophy and concepts of the rural-oriented primary school curriculum.

The scope of the new teacher education programme consists of teaching-learning activities organized around three main themes, each one for every year of the three year programme. The first year has for its theme -- Skill Achievement for Community Education. It promotes the mastery of basic skills needed by the teacher-to-be for effective participation in various aspects of community development. In the second year, the theme is Content Achievement for Community Education and it provides for the trainee to acquire necessary content materials and how to organize them. The theme for the third year is called, Professional Achievement for Community Education. In this year, the trainees develop professional competencies.

Throughout the three years of pre-service training, the skills, content and professional competencies are developed through work-oriented projects and activities. These projects are assigned to

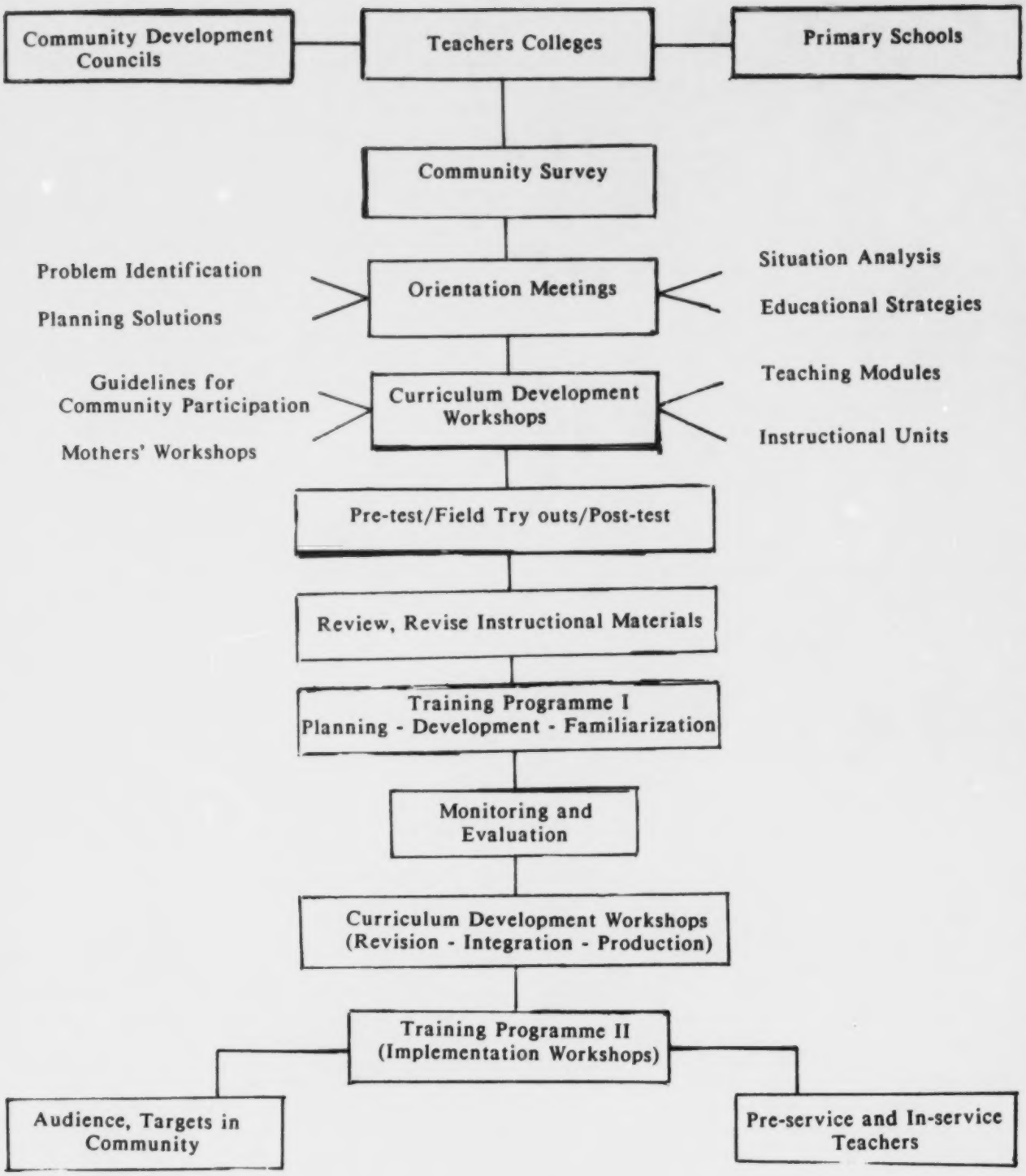


Fig. 1 Curriculum Development in the Bunumbu Process

groups of eight to ten student-teachers under the supervision of three or four lecturers. For example, during the first year, projects might include skill development in practical arts and rural technology, such as weaving, ceramics, blacksmithing and cane furniture-making. In the second year, the trainees focus on "what we need to know for everyday living", which integrates the practical subjects with science, mathematics, communication arts, and community studies. During practice teaching in the third year, the trainees are expected to demonstrate classroom teaching skills and, in addition, to conduct rural studies and surveys, to plan and carry out self-help projects in the villages such as, construction of village markets, town hall or barrie, digging of latrines or water well, craft training for out-of-school youth, and adult activities in nutrition, health or agriculture.

In effect, student teachers find themselves in the pilot schools/villages offering afternoon classes for pre-and post-natal care, demonstrating new ways to prepare nutritious meals, constructing model kitchens and many other 'food-centered', community oriented activities. Other students would have farm projects, adult literacy classes, construction of water wells, latrine or market sheds. Their training focuses on skills development for community education as well as the science of pedagogy. The department of Community/Rural Development Studies of the Teacher Colleges assists in the development of skills in the teacher that would enable him/her to function as community animateur, or change agent and as facilitator for community education.

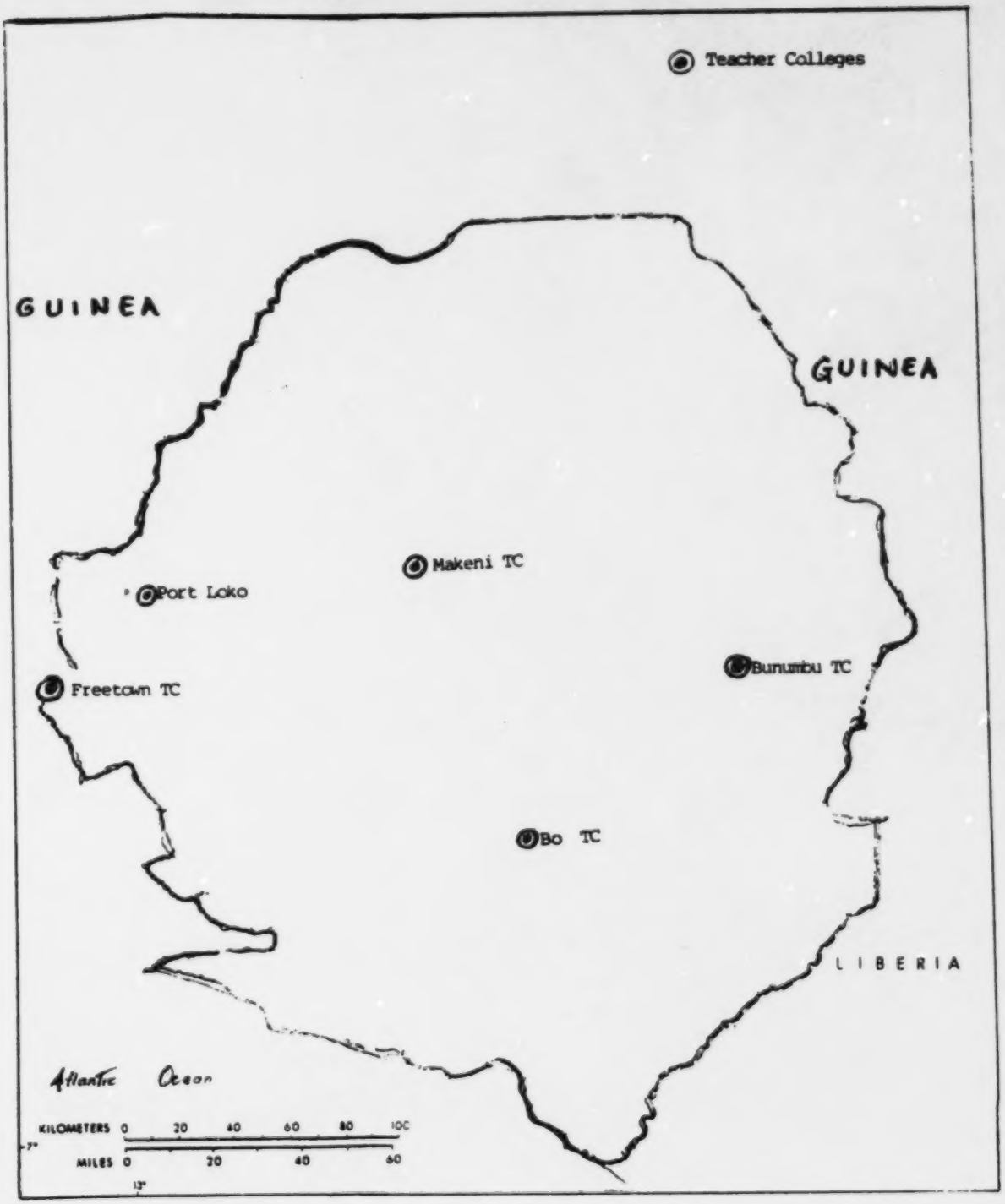
Community Development Councils in the pilot villages promoted school/community integration through rural technology workshops, self-help programme and community education. With the help of lecturers from the college and primary teachers as project leaders, adult education and literacy programmes, public lectures and women's demonstration classes for health and nutrition were held. Focus was also given to establishing cooperatives and mutual aid organizations. The community became involved in gathering information about their problems, planning for their solutions and acting upon them. Inservice training by and for village craftsmen and mobile crafts team in local communities reinforced the practical arts training in the pilot schools and the Bunumbu Teachers College. Thus, the primary schools became community education centres.

These innovative educational practices at the Bunumbu Teachers College resulted in the following outcomes:

(a) A curriculum for primary schools relevant to the community
(b) A new teacher profile
(c) A cadre of trained teachers for rural areas
(d) School/Community integration
(e) Teacher pre- and in-service educational programme.
(f) Institution building for community education

The government of Sierra Leone, because of the results of the Bunumbu project, decided to expand the project's programme in other areas of the country through a UNDP/UNESCO assisted project starting in 1985 for a period of four years, called "National Dissemination of an Innovation in Primary Education." In general, this project will concentrate on (1) the improvement of the primary school curriculum in the schools attached to the other four teacher training colleges in Sierra Leone: Bo, Freetown, Makeni and Port Loko (See Fig. 2) (2) a corresponding improvement of primary teacher education (3) the linking of primary teacher training colleges with local communities, and (4) developing primary schools into community educational centres capable of providing learning programmes for both children and adults. In a decade, the Bunumbu Pilot project has been translated into the 'Bunumbu experience' and the 'Bunumbu context' has now become a part of the dissemination process.

Fig. 2 Locations of Teacher Training Colleges in Sierra Leone



Part One

COMMUNITY PARTICIPATION IN NUTRITION EDUCATION

". . .Perhaps the most significant achievement of the "Bunumbu Experience" is that it ascended from being simply another "project" to being a "spirit". This intangible or abstract effect seemed to have brought about an entirely new attitude - one of cooperation and self-help -within the minds of those involved in project activities. Local students, graduates, teachers, administrators and Community Leaders speak of the "Bunumbu Spirit" as a symbol of "getting a job done."

Terminal Report, March 1983
UNDP/SIL/73/009
UNESCO, 1983

CHAPTER 1

HEALTH AND NUTRITION IN COMMUNITY EDUCATION

Community Education is aimed at human resource development by providing the necessary knowledge of the social and physical environment, by developing capacities and skills towards effective participation in local-level problem-solving and self-reliance in development activities. People should be given the opportunity to participate in determining their goals and to make decisions for major changes in their communities. The philosophy for community development stems from the belief that people accept change and seek improvement.

Nutrition and health-related problems of Sierra Leone should be a major consideration for community education. Sierra Leone has an infant mortality, estimated to be one of the highest in the world. It is estimated at over 200 per 1000 live births, differing markedly by regions. Child mortality rate, covering the 0-5 years age group, is estimated at 366 per thousand. Life expectancy is presently to be 47 years for men and 50 years for women. The predominant causes of mortality in Sierra Leone are due to inadequate nutrition, over-crowded housing and communicable diseases as well as to the lack of basic environmental health conditions, i.e. safe drinking water supply and sanitation. Major communicable diseases like measles, malaria, tetanus, tuberculosis and whooping cough account for the bulk of infant and child mortality. Respiratory diseases, skin ulcers, helminithic infections, anaemia, schistosomiasis and diarrhoea, also constitute serious health problems. Malnutrition exists in both urban and rural areas. A national survey conducted in 1978 concluded that nearly 24% of all children in the 0-5 years of age group suffered from chronic under-nourishment. The average daily intake of food necessary in order to lead a healthy life remains far below the required level within the average household. It follows that approximately 30% of the young children are under-weight, with the peak being attained in the second year of age. (Country Health Resources Utilization Review, 1984).

The most important health and nutritional work in the community consists of prevention rather than cure. Children are more vulnerable than adults to the effects of poor nutrition and health conditions. Under-fives are at an age when poor nutrition can contribute to serious illnesses. The younger school child is also at an age where poor food can have permanent effect on his health and development. Mothers have special dietetic needs during ante-natal and post-natal nursing periods. The problem of lack of food, attitudes and beliefs about certain foods complicated with lack of knowledge about sound nutrition contribute to their being ill-fed and in ill-health. Although inefficient food production and distribution systems contribute to the prevalence of under-nutrition, parents need a better understanding of the nutritional needs of the family, especially, the young infant or child and how to exploit existing food resources within their purchasing power.

Food Habits Which Contribute to Under-nutrition

Food habits are difficult to change. They are deeply rooted in the past for all people and intimately woven in customs, religious beliefs, educational and economic attainments of a given society. The failure to provide enough of the right amounts and kinds of foods to those with greatest nutritional need may be rooted in food habits, traditions, beliefs and plain ignorance. Eating practices which contribute to the nutrition problems (not in ranking order) are as follows:

- no definite daily meal times for children in the family;

- families eating from a communal bowl at the same time, where smaller and weaker children receive less food than the more aggressive children;

- breakdown of traditional methods of family spacing and lack of access to information and services of modern methods of contraception;

- social restrictions relating to the consumption of animal protein by pregnant and lactating women;

- food restrictions that affects certain members of the community;

- customs, routines and practices that prevent children and workers from taking food before leaving for school or work;

- customs, routines and practices that allow for only one meal a day, usually cooked in the late afternoon;

- cooking one meal a day consisting of the same diet or menu each day (not always well-balanced) and with left-over foods (usually improperly preserved) sometimes being saved and eaten the next morning;

- poor conditions for preserving foods, coupled with the humid weather, causing many foods to become spoiled and dangerous for consumption.

Before trying to change people's food, it is important to find out what is wrong with the local diet, why people have certain eating patterns, how deep-rooted are beliefs and prejudices, how much of the problems is due to poverty and inability to buy or produce more and how much is due to ignorance.

Social Factors

Food habits that are most closely associated with family sentiments are the most tenacious throughout life. Eating together as a family brings closeness and solidarity. Long into adulthood certain foods are valued for reasons totally apart from any nutritional value. In nearly all societies, lavish amounts of foods are served on special occasions such as wedding, feasts or funerals, - the more lavish the spread the greater the compliments to the host. Even the low-income families will borrow money on the next harvest or take years to repay in order to provide a feast. In general, low income is correlated with inadequate food intake or high carbohydrate with nutrient inadequacy.

Prestige Food. One of the wonders of the modern food world is the widespread consumption of soft drinks and beer even though they are expensive and nutritionally negligible.

Advertisements. Media has many times brought attention to the consumer certain foods to buy and create a demand. Likewise, advertisements may help create prejudices and beliefs, valid and otherwise, especially when consumption is associated with illness, as in the case of sugar, viz-a-viz saccharin or other non-caloric sweeteners, food flavoring, processed foods, etc.

Beliefs, Taboos and Religion Some foods are considered "light" or "heavy" or likely to produce winds, constipation, worms, etc. In many parts of Sierra Leone, eggs are thought to cause sterility in women or make children steal. Each religion has very specific rules on what foods are acceptable or taboo.

Familiarity. Homemakers become familiar with foods within their purchasing power. A high carbohydrate diet, usually low cost and nutritionally inadequate, is a much accepted practice in many families.

The Assessment of Nutritional Status

Baseline information about the nutritional status of the community can be attained from both direct or indirect assessment.

Nutritional Anthropometry

Selected body measurements can give valuable information concerning certain types of malnutrition in which body size and gross body composition are affected. Nutritional anthropometry is concerned with the measurement of the variations of the physical dimensions and the gross composition of the human body at different age levels and degrees of nutrition.

The most usual anthropometric measurements are (a) weight (b) height. While there is no easy and satisfactory way to measure the nutritional status of a child at a single examination, the two most common methods are the weight for age (Gomez-type) nutrition classification and the measuring strip. (See Module on Nutrition and Growth) These measures are compared to local standards when available, for weight-for-age and height-for-age, and weight for height according to sex. However, the most widely available general anthropometric standards of reference are the Harvard standards or Baldwin standards.

Growth Charts

A growth chart is basically a graph for under-five on which a child's weight is shown at different ages. (See Module on Nutrition and Growth). It will give graphic plots of weight for age over a number of years, to show the direction or angle of a child's own growth line. Other important features of the growth chart include information about child and family, immunization, medical history, special care for the child. Parents keep this chart at home and where it concerns a child-at-risk, its information should encourage parents to be more involved and responsible for the child's health care.

Dietary Evaluation

The assessment of food consumption in relation to nutrient and energy requirements is called dietary evaluation. The household food consumption survey, consists of three steps:

(1) assessment of food consumption-recording quantities of food eaten during a set period, say, 7 days by weighing and measuring foods in the raw state or perhaps cooked portion.

(2) calculation of nutritive value of food - food composition tables, preferably local, if available are used to calculate value. Food composition should be calculated per day. Cooked servings may be used and weighed if distribution within the family is used.

(3) comparison with nutritional requirements - the dietary data forms the basis for practical measures to improve the nutrient intake, including nutrition education.

The twenty-four-hour recall is an abbreviated survey method. The interviewer asks the householder on all foods consumed during the previous 24 hours. The diets of school children can be evaluated by a modification of this method - such as, determining the frequency of consumption of various items in their diets, to get a general idea of the food pattern of the community.

Vital and Health Statistics

A considerable amount of information can be collected which may give an insight into the characteristics of the community and its life, health and mortality experience. This indirect assessment comes from population histograms of

various age groups, which could reveal if the population is preponderantly young and therefore give critical clues to the existence of nutrition problems.

Morbidity and Mortality Statistics

Death rates in the second year of life may be the best indicators of childhood mortality from malnutrition. This is the classical age-group principally affected by kwashiorkor. At this time, the child is experiencing the "transitional" dietary period, when the main foods are likely to be largely carbohydrate. (See Module on Nutritional Requirements for Specific Groups.) Incidence of acute diarrhoeal diseases and its repeated occurrence in a community has implications for environmental sanitation, home management of the infection and prevalence of the use of rehydration therapy for the community. Parasites and diarrhoea reduce the efficiency of nutrient absorption. Maternal mortality rate as well as the number of pregnancies, still and live births in the reproductive history of the mother in a household may be correlated with health care practices viz-a-viz, prenatal and post natal care, family planning attitudes and nutritional requirements during pregnancy.

School-Community Relationship

To bring about behavioural changes in a community, it is important to understand the economic, social and cultural factors which influence dietary patterns, food intake, and thus, nutritional status. Nutrition education begins by identifying the nutrition and health problems, analyzing the nature of the problem and reviewing the behaviour or practice that is related to the problem. A full understanding of the factors which contribute to the problem should now lead to school-community relationships.

The nutrition educator should focus on the integration of these problems in school learnings and the targets themselves should be involved in exploring new nutritional practices, i.e. preparing balanced meals and diets for specific groups, food substitution and improved sources of food nutrients. Schools should involve the pupils and community groups to conduct their assessment of nutritional status, collect dietary information, recognize physiological indicators of malnutrition, identify deficient groups and the incidence of deficiencies.

The increasing role of the schools as community education centres providing "outreach" services in health and nutrition, integrating nutrition teaching-learning utilizing community participation toward realistic solutions are all aimed towards the protection and promotion of the health of the pupils, home and the community.

CHAPTER 2

KNOWING YOUR COMMUNITY

To be able to introduce innovative and effective techniques in nutrition education, it is important to determine what are the nutritional and health-related problems that serve as constraints to 'healthy eating' as well as the available local resources that can be utilized to solve them. As in most rural areas in developing countries, the adverse nutrition situation cannot be solved alone by formal education experiences but by eliciting also the active participation of the community in promoting the goals of nutrition education. The Bunumbu experience starts with a community survey and an identification of the 'felt needs' which sensitizes the community to their problems and indicate targets for nutrition education outside the formal system. The findings become a basis for teaching-learning situations that are relevant to the needs of the children, and which promote nutrition practices through community participation.

Information about the Community

The purpose of a community survey is to acquire information that will help define nutrition and health education activities. (See Appendix I). The socio-economic data and demographic characteristics of the community will reveal the social and economic potential for community participation, local facilities and resources for nutrition education. It provides information on the household size, composition, ethnic grouping, income-level, housing conditions and general environmental sanitation. With regards to the community and child nutrition surveys, data about practices in relation to infant feeding, nutrition status of the child, household eating habits, home hygiene, health care and beliefs concerning food consumption are taken into account in the content of instructional materials and in health promotion activities which are community-based. As a body of information and data-gathering device, the community survey should also include a study of the attitudes towards nutrition and health-related practices in the community. These attitudes, in addition to the knowledge and behaviour of the nutrition education targets will in the long-run be important indicators to determine the effectiveness of the educational activities.

In the community, there are formal and informal groups and organizations, key people, leaders and youth who can contribute to the community participation process. A survey will identify members of the community who comprise the Community Development Council (CDC) and in some areas, women and teachers are members of these committees. School based organizations, like the Parent Teacher Association (PTA), social and trade unions are valuable sources for community action. Members of these groups and other individuals can provide inputs in the form of labour for self-help projects, access to land, water and other services, resources and skills for income generating activities, linkages to various governmental and non-governmental sectors in the area, problem-solving machinery and decision-making apparatus.

Leaders, women, teachers and pupils participate to identify their perceived problems and felt needs, which provide directions for community involvement in nutrition education.

Information for the Community

Any community survey should be carried out with the full knowledge and understanding of the Community Development Council or the village elders on its purpose. The assessment of community needs and resources needs to be shared and discussed with the community, before, during and after the survey. This will spark the interest of the

people on what is their local situation and stimulate them to think about what can be done by themselves.

After the survey, the headmaster and staff of the primary school in the community and/or the Community Development coordinator of student teachers, should discuss the results and collectively plan on what the school can initiate or facilitate to get the community involved. In a meeting with the CDC, based on the results of the survey and other information, the group must recognize and define the needs and problems, compare the present conditions with the desired goals and decide if it is feasible to attain. The group must also discuss the priority of the things they want to do, what resources are available to them in the community, and their capacity to successfully complete their plans.

It is the role of the school personnel or staff from Teacher Colleges to inform the community/CDC what services and materials from governmental and non-governmental agencies can supplement their resources. For example, the construction of water well or latrine as possible solutions would require all the information about the use of local labour and materials, the technical support from the Rural Water Supply Unit, Ministry of Energy and Power, or from the non-governmental agency supporting water well construction, the community responsibilities for its maintenance, and the behavioural changes required to achieve the benefits of the health facility. If supplementary foods for infants is the problem, educational activities should be planned and assistance from non-governmental organizations concerned with food-for-work, or feeding of under-fives should be explored and solicited.

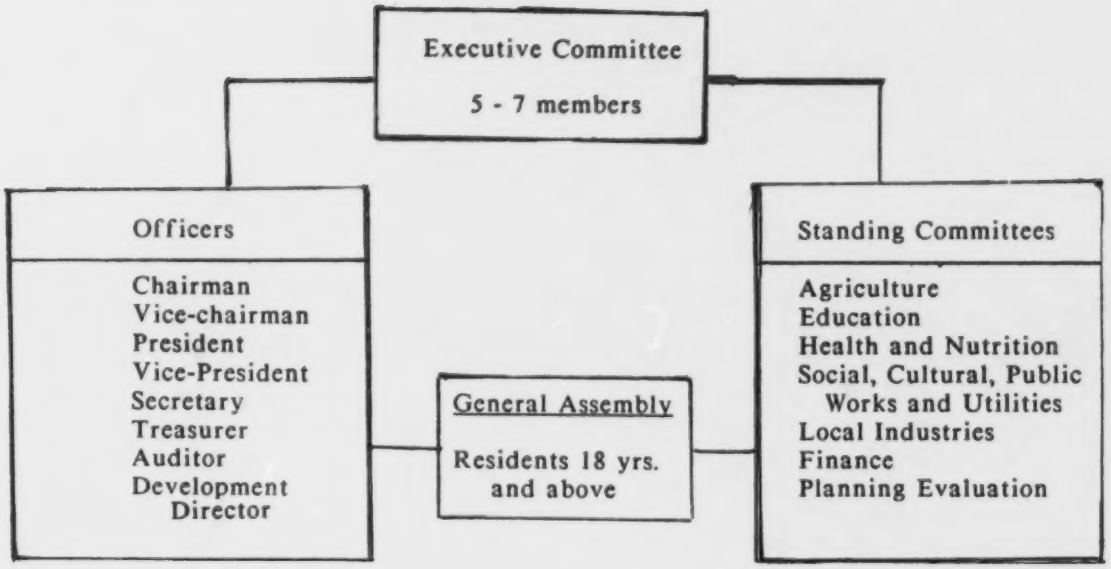
During these meetings and dialogue with the Community Development Council or with other groups and individuals, emphasis should be on the social potentials of the group to undertake its initiatives, in order to develop confidence in their ability to carry out their responsibilities. More attention should be made to cooperative spirit, group pride and sentiment. Two-way communication between leaders and their people, and between the school and the community should be promoted to ensure popular support and voluntary participation.

The Community Development Council

Community development is a process for change. It is both the means and the end, and is aimed towards a better way of living and of doing things, initiated and sustained by the community itself, in an almost complete mobilization and harnessing of the physical, economic and social potentials of the local community groups. The processes motivate and stimulate active participation and enthusiastic response to the outcome. It will succeed if people themselves choose to do what they feel is best for them, make widespread use of local manpower and material resources and if there is a good-sized organized local group that plans, implements and works on their chosen activity/project.

Community Development Councils (CDC), composed of community leaders, respected members of the community, school personnel, and youth are organized to promote cooperative action and use educational institutions as catalysts for change. It serves as a voice of the community discussing problems, exchanging ideas and finding solutions to a communal problem. Depending upon the size of the community, the CDC has officers, an executive committee and subcommittees as well as a general assembly.

Community Development Council



The structure of the CDC need not be the same for all communities - but it will depend upon particular need and local situations. What is important is that it is representative of the entire community, it is simple, flexible and composed of people who have abilities, experience and readiness to work on a voluntary basis.

Paramount among the purposes of the CDC are:

(a) to identify the felt needs of the community
(b) to sensitize community members to the problems
(c) to discuss and find solutions to its problems, and
(d) to marshall available local materials, labour and other resources for development purposes.

It is through the functions of these CDC's that self-help projects are planned and carried out. Through the CDC's, people learn how to help themselves. It becomes a vehicle for coordinating all community activities and services.

If teachers and other government workers are to promote school-community integration, they must work with individuals and groups, help them think clearly and constructively about problems and translate these needs into teaching-learning situations, promoting understanding of rights, duties and privileges, as well as obligations of the people to its own community, government and country. The process could well begin in school, reach out to active citizen participation and implement community action.

CHAPTER 3

UNDERSTANDING COMMUNITY PARTICIPATION

Nutrition education recognizes that nutritional diseases and poor nutrition status of the people come from four factors: (1) dietary deficiency (2) ignorance (3) eating habits and (4) standard of living. If the principal object of nutrition education is to ensure that each individual eats suitable food to safeguard his health, then, the rudiments of nutrition must be taught in as early as primary schooling, and public awareness of nutrition problem must be increased. Its content and materials must be derived from the resources, experience and needs of the community. The "target population" must be studied and the activities adapted to their special requirements, preferences and problems. The higher the degree of participation of the target population the more effective will be their learning. The greater the involvement of the community in a planned activity, the more will be its success. Community participation provides unique opportunities for determining real health problems in relation to the physical environment, food production and the people's nutrition.

Types of Community Participation or Involvement

Community participation is a process or tool for development - involving people in assessment of the situation, definition of the problems and planning actions.

Community participation depending upon the community's degree of initiative may be classified as a) spontaneous or voluntary - where a social group itself takes the initiative to participate in the administration of an educational activity or a project; b) induced, which is the most common form of involvement, which results from innovations introduced by the implementing agency rather than the community and c) compulsory, which usually takes the form of mustering the community for manual labour or a financial contribution, and is not an educational activity, in the strict sense.

Three types of community participation are described: the first, sometimes referred to as nominal or passive, amounts to no more than a one-way flow of information to a community through the members attending meetings or receiving information. There is no genuine involvement. It is often reported that there are many participants in an activity, mere attendance being wrongly equated with participation. The second type of involvement is consultation. The community is not only informed but it reacts and expresses opinions. This is a fairly low level of involvement since those who are taking part are not necessarily the decision-makers. The consultation should be two-way, especially when it is between school administrators or personnel and the community. The third type of involvement implies the sharing of power. The questions that arise relate to the extent the community's power (whether legal or by regulation) to insist that its point of view be taken into consideration. It implies that the community has been associated with a decision - it has a voice in the decision making body. When the CDC is headed by the Paramount Chief, by virtue of traditional authority and legal powers, he has access to government sectors and has influence to speak for the community.

To insure involvement, certain conditions are necessary: a) the goals are strongly desired by the target audience, b) the means of making the information it requires is available to the community, c) there is good motivation, d) the community identifies their needs, clarifies on it and shares in the methods and processes in implementing its tasks and e) a political will on the part of the leaders and members of the community to act on the

decisions of the group.

Levels of Participation

A. Problem Analysis. The thing a community wants, or thinks it needs - its "felt needs", - may not always be the same as the "actual needs" - the things that are really necessary. Planned interviews, questionnaires, observations and informal discussions will reveal the community problems and what causes them. Perhaps, in the community, it was found that agricultural production is low, family income is inadequate or that there is a high incidence of kwashiorkor. A consultation with community leaders or the Community Development Council (CDC) to understand the nature of the problem is the start towards defining the problem. A reflection and verbalization of these felt needs and an analysis of the situation to define the problem by the community itself is the first level of community participation.

B. Presentation and Interpretation of Data. This level of community participation depends upon the nutrition information and related data collected from planned interviews and discussions with community members. The target population can provide clues about their health status and social and culture background as they affect the ability of the community to solve their own problems. Responses to the survey will reveal which families, individuals and social groups are at special risks of nutritional problems. Women's responses can be collected in an assembly or workshop setting, while older children can assist in gathering information about their younger brothers and sisters at home or other children in the community.

Interpretation of the findings of the community nutrition survey and the discussion of the resources needed and possible sources of action towards the solution of the identified problems, is the second level of community participation.

C. Identifying a Solution. Group interaction, group decision-making and social cohesion are necessary elements in the work of the Community Development Councils in identifying a solution to a community problem. The discussion of possible courses of action should indicate weaknesses, requisites for the community, internal and external resources, as well as its probable results and consequences. The community then decides on what action to take.

The solution should encourage local initiatives and responsibilities. Developing the innate potential for community involvement and self-help with the participation of as many as possible is as equally important as the goal that the group has set out to achieve.

The third level of community participation in identifying a solution from among possible solutions ensures a community-based decision.

D. Planning and Implementing Community Action. An important aspect of planning for community participation in nutrition education is a listing of the specific objectives for change in nutrition behaviour. Community participation in nutrition education may specifically help government to implement a certain general social objective as "operation feed the nation" or reducing infant mortality and morbidity.

In setting up objectives, considerations need to be given to the following:

a) the target audience - mothers, under-fives, farmers, teachers, youth, school children, etc.
b) the behaviour aimed for - using toilets, boiling drinking water, preparing ORS, cultivating a home garden, preparing weaning foods, kitchen hygiene, etc.
c) conditions to bring about change - instructional units, mothers' demonstrations, field trips, meetings, growth monitoring, media campaign, etc.
d) indicators of change - improved knowledge and understandings, attitudes, health facilities and nutrition-related practices.

At this level of participation, constraints to the activity that are likely to occur must be identified and appropriate responses planned, such as:

1. Poor attendance at community meetings (small number; some groups not not represented; few women.)	- change time, site, etc. - arrange to meet unrepresented groups separately - define the purpose of meeting more clearly. - provide new incentives to attend (film, food, brochures)
2. Poor reception of project planning or coordinators by communities.	- pay courtesy visits to community leaders - involve communities in data collection - use local opinion leaders for assistance - address community meetings provide more and readily understood information to communities
3. Difficulties with voluntary labour contributions, by communities.	- allow choice of labour or cash contributions - make tasks compatible with tradition for certain classes, religions, sex - set time table according to wishes to the community - arrange community requisites taking into account other community work, physical capacity, migration patterns, labour types
4. Difficulty in understanding their roles and responsibilities.	- delineate functions and responsibilities clearly - encourage the team spirit.

The Community as a Learning Group

The local capacity for organization among group and associations in Sierra Leone should not be underestimated. Traditional expertise and knowledge must be taken into account, because whatever experience the community has acquired is derived from their own culture. Often, it is not a lack of education that prevents community action, but rather, a lack of financial and material resources. The failure of many community development projects can be traced to neglecting to use local skills and experience.

Community participation should be a learning experience. The informal training which schools make available as community education centres provides programmes not only in nutrition and health, but also in functional literacy, craft development and agricultural extension services. It stresses "participatory training" which indicates an orientation to trying to increase the extent of participation of the trainees in the learning process as well as in community action.

The major training of people accomplished through community participation is that of practical experience in running their own affairs. Problem-based learning is a process by which a target audience learns by utilizing a problem as a stimulus to discover the information needed to understand the problem and is motivated to act upon a solution. It not only

increases their learning potential but also the knowledge about nutrition- related issues in the community.

During the planning of the community project/activity, it is important that unrealistic or unattainable tasks are not incorporated in the goals and that the extent of community involvement and responsibilities are clearly defined, such as:

- who participates in planning
- the community information and communication network
- collection of local materials or storage of equipment
- voluntary labour and other services
- fund collection
- safe storage of materials and equipment
- selection of community members for special tasks and training
- identification of problem
- data collection and evaluation
- monitoring of activities and indicators
- extent of government and external support
- materials for community education/ nutrition education
- role of 'external' agents of change

Nutrition education is a community-oriented programme. Its ultimate success depends upon the people themselves and the type and nature of messages that are received and acted upon by the community.

CHAPTER 4

THE ROLES OF THE TEACHER

AS COMMUNITY ANIMATEUR

Working with the community goes beyond the traditional roles of the teachers. While classroom instruction is expected to expand knowledge, create awareness, change behaviour and improve health and nutritional status, it cannot be expected to promote healthy living if the pupils are ill-nourished, and subject to diseases, if the school does not maintain sanitary and hygienic conditions, and the community remains ignorant of problem solving. School-community relationships should enable the pupils to maintain and improve their own health and promote within the community their share of the responsibilities to protect the health of others. It will depend upon the quality and motivation of the teachers themselves. It means developing new roles, doing the right things and doing them together with the people.

Change Agent

Health and nutrition education in the community is more effective if the teacher has good relations with the members of the community. It is important for people to see that the school is responding to their problems and needs and involving them in doing something to solve these problems. The people will be convinced that a programme is worthwhile if they see that the teachers are doing good and sincere work.

As a change agent, the initial step is to win the confidence and cooperation of the people. Broaden your contact with the leaders of the community. Count on the Community Development (CDC) to take some responsibility for the success of their programme. The participation of the community is usually decided by community leaders.

In working with the people, the key approaches are as follows:

A. Find a community feeling. Talk about things you have in common - food, clothing, health, worship, work, children, etc. Establish common interests in the basic areas of everyday living.

B. Start where the people are. Find out what they think is their imperative need or needs of the locality. Discuss their interests. Get to know all about their level of technology, degree of literacy, food habits, customs, etc. Know the extent of cooperative practices. Appreciate the likeness of their ways and beliefs with yours and understand the reasons behind the differences.

C. Help the people believe that they can improve their situation. Get to know their reasons for doing things the way they do. Make the people aware and understand the possible consequences of change of the very elemental human situations related to their way of life, i.e. less faecalrelated diseases by having a safe water supply or use of latrine, reduced infant mortality by improved feeding practices and home hygiene, improved nutrition with home gardens, etc.

D. Carry on activities in which the people themselves are interested. People will be interested in activities with concrete outcomes. Use the people's own organization and existing physical and social resources. Spend more time in finding out what people want for themselves and less time on what you and other "specialists" think the people need.

E. Watch the people's pace and keep in pace with them. Be content with small beginnings. Go slow at the beginning. Allow time for questions to be formulated and asked. Never forget that it takes

time to get things done.

F. Place responsibility on the people. Recognize any progress they make to enable the community to realize that it is their project. At the same time, expect growing pains, like people hoping that could have their own way or assuming more responsibility than they can handle. Anticipate one activity to another. The energy and resources must be of the people, by the people and for the people. You are only the "spark plug".

Adult Educator

The first function of the adult educator is to inspire both a desire for change and an understanding that change is possible by people's own action, either individually or in cooperation with others. When the people's felt need is improved health, the community must be aware of the role of safe water supply, sanitation and nutrition practices as co-factors in promoting health, even as they are taught improved agricultural practices or preventive medicine. There is no compartmentalized solution to problems. The work of the adult educator must be linked with various areas of knowledge and common sense to make community action effective.

To help adults learn or to change their behaviour the adult educator must involve the learners in their own education. By drawing out the things the learner already knows and shows their relevance to the new thing which is to be learned, the teacher has done three things: a) he has built the self-confidence of the individual who wants to learn by showing him that he is capable of contributing, b) he has demonstrated the relevance of the experience and c) by sharing his knowledge, he has shown that the learner can extend his understanding and better control over their lives. For example, the learner may know what time of the year malaria is worse and which group or work place is badly affected. The adult educator can present certain factors in the community, such as breeding places, housing conditions and environmental hygiene that contribute to its prevalence as bases for greater understanding and motivation to act on their problem. He uses a variety of methods and techniques to facilitate learning and community participation.

The teacher of adults becomes a leader, a guide along a path which all in the community will travel together.

Facilitator of School-Community Relationships

The teacher, as facilitator of school-community relationships interprets school health and nutrition programmes to families and communities, and participates in suitable committee mechanisms of either school or community. He comes with a knowledge about personal and community health, home child care and nutrition that can be integrated in school-community action programmes. As a facilitator, he has skills in desirable interpersonal relationships and cooperative work to promote the health and nutrition status of both the children and members of the community. He has adequate background on the content of the school subject areas that can be translated to community learnings for both the pupils and the people, and of the ways in which the teacher may work properly and effectively with the community.

As a facilitator, he can link community groups, health and social agencies to develop a sanitary environment in the school and in the community, promote sound nutritional practices and health habits, and at the same time, provide opportunities for continuous community education.

To increase the desire of the people to improve nutrition, interesting and effective messages must be passed on effectively. The following pointers should be considered:

1. Catch the attention and interest of the mothers. Answer with sincerity

their questions and use as examples particular situations they are familiar with, such as the enlarged thyroid of a neighbor, the yellow eyes of a child, or distended stomach of an infant.

2. The message should be simple. Bring out one idea at a time. The ideas should be closely connected to something a mother already knows. For example, in supplementary feeding for infants, four months and above, explain the value of adding palm oil, fish meal or bean to rice pap or porridge to increase its nutritive content.

3. The message should apply to the mothers' situation and their homes and desires. The use of water for healing various illnesses or infirmities in the household relates to much of the mothers' needs when someone is ill.

4. The message should be heard, seen and understood. Use simple statements, clarify with visuals or demonstrations to explain what you're talking about, and receive from the mothers their own ideas about your message. Repetition will reinforce the message.

5. A local proverb, joke or song can make it easy to remember a message. The participants could interpret the message using their own culture and traditional common sense of communicating ideas through story telling and proverbs. Many health songs can be translated in ethnic languages and rhythm.

6. A friend and respectful relationship is a great help when teaching or learning. Many teachers create their own barriers to learning by their own arrogant attitudes. A welcoming smile, a helpful deed, and sincere attention to the learners will lead to a good working and learning environment.

Continuous learning and teaching take place in the community. Community animateurs/teachers help parents learn. Parents help children learn. Children help parents learn. Everyone helps student teachers learn. College lecturers help student teachers learn. College lecturers learn from everyone in the community.

CHAPTER 5

THE COMMUNITY ORGANIZATION APPROACH

The behavioural changes aimed for in nutrition education in general are directed to the family as a whole, but particularly, to populations-at-risk such as pregnant and lactating women and children under two years old. Thus, it is desirable to carry out individual and family contacts, to understand and correct, where necessary, the attitudes, beliefs and food practices that influence the nutritional needs of the individuals.

However, where repeated contacts may be restricted before the individual targets are able to adopt or change their food patterns, etc., group support will be needed. It is easier to change the thinking of groups than that of individuals. Small group discussions that focus on the nutritional aims or message require skilled leadership to guide the group to become aware of the need for change and to assume responsibility for bringing about the change. Large audiences can be reached by use of certain communication media, i.e. radio, films, exhibits, newspapers, etc., but for mass media to be effective, it should be followed up by community level contacts.

Elements in the Community Organization Approach

The community organization approach combines the individual and small group approaches, and depending upon the circumstances, may include the use of mass media. Health promoters, nutrition educators, school personnel and other sector representatives pool their knowledge, experience and resources and develop ways and means by which health and nutrition problems are solved. This approach encourages leaders within the community to assume responsibility for identifying and solving their health and nutrition problems. Particular attention should be given to the following elements:

(1) Mutual trust must be developed between the community and the school system implementing health and nutrition education. The contacts must promote understanding, demonstrate interest and commitment from the programme organizers and involve the people in the planning, as well.

(2) Special attention should be paid to leader identification, especially women, and to utilize them in the educational activities and the diffusion of the practices aimed for in the health and nutrition programmes.

(3) There should be multi-sectoral representation in the health and nutrition committees of the Community Development Council, who will be responsible for the health and nutrition programmes. Membership in these committees should come from all sections of the community.

(4) Deliberate efforts should be made to reduce the social distance that people perceive between themselves and the community workers or health educators. Calling in the homes of the members of the CDC, participating in the social activities of the community, learning and practice of community dialects and customs, greeting and treating the residents of the community nicely, are among the means by which social distance can be reduced.

(5) Every member should be encouraged to greater activity by giving him approval and recognition for the part he plays in the health and nutrition programme in the community.

(6) Some of the felt needs of the community may not be related to health or nutrition. People reject programmes, not because of their lack of interest, but because they perceive other needs as being more pressing. While the community health and nutrition workers may not be able to satisfy these needs directly, they might be able to assume some responsibility in helping the community to find a way of satisfying them. By showing readiness to help, the worker gains not only people's confidence but also increases the chance of success of the programme.

(7) Participation in some type of activity by as many members of the community is a key to the success of community organization efforts. Similarly, leaders and others could be given responsibility for educational activities, like making family contacts, arranging and conducting of group meetings, exhibitions, mothers and village workshops.

(8) In planning educational activities, consideration should be given to the amount of free time that women have, the availability of human and material resources, and their educational level and ability to undertake the activity.

(9) Many communities have organized groups formed to meet different purposes, such as religious groups, political groups, occupational groups, mothers' clubs, youth clubs, etc. Build up personal relationships with the heads of the groups, arrange for session with their members and encourage them to set an example in health and nutrition practices.

Target Groups and Educational Approaches

There is no uniform method that can be used to educate different target groups in a population. The methods chosen would be determined largely by factors like cultural differences, levels of education, perception about health and nutrition problems, proposed solutions, readiness to accept innovation, competence of personnel and cost factors. These targets groups consist of the entire community for whom programmes are planned: women (including pregnant and lactating mothers), school children, village elders, trainers, and organized groups. Individual and small group approaches and other educational activities should be adopted for the general public, while special programmes may be needed to reach populations-at-risk, especially, the under-fives.

Part Two

TEACHING-LEARNING IN COMMUNITY PARTICIPATORY ACTIVITIES

" . . . With the involvement of teachers in curriculum development and in-service activities related to the (Bunumbu) project, (91% of headmasters report) there had been improved learning activities with consequent increase in level of achievement (93% of respondents). These viewpoints expressed by headmasters can be justified on the grounds of relatively high pupils scores on the end of unit tests."

- **Evaluation of Curriculum Report, A. Labor, Institute of Education, 1985**

CHAPTER 6

SCHOOL COMMUNITY HEALTH ACTION PROGRAMME

(SCHAP)

Health and nutrition education cannot be successful if the school activities are limited only to providing instruction and other related services within the compound of the school. Learnings should no longer be confined to the four walls of the classroom but should be extended to solve community problems and generate rural/urban development activities with the cooperation and support of the home and community.

The main objectives of the School Community Health Action Programme are to initiate and implement community activities in conjunction with school learning and to utilize local human and material resources to promote the health status of the community.

The SCHAP provides opportunities (a) for community participation in improving environment of schools (b) to carry out "outreach" activities correlated with environmental health instruction in schools and (c) for participating in health improvement programmes in the community.

Nature of SCHAP

The aims of School Community Health Action Programme goes beyond the objectives of classroom instruction. It suggests that health and nutrition education should not be the responsibility of the health or home economics teacher only but should also be the concern of every one in the school as well as in the home and community. The concerns should be on the change of behaviour, habits and attitudes with respect to good sanitation, prevention of diseases, nutrition, home hygiene and communal health.

The acronym - SCHAP - serves as a guide to the areas in which teachers, pupils and community members can focus:

S - Safe water supply and sanitation
C - Control and prevention of diseases
H - Home, child care and nutrition
A - Access to health services
P - Personal hygiene and physical education

The SCHAP becomes a partnership between the school and community by involving the Community Development Council (CDC) as well as the Parent Teacher Association, women, youth and religious groups and other community organizations.

Community Participation in SCHAP

The SCHAP is initiated into the community through a community survey, which may be conducted by teachers, student teachers or older pupils. The survey instruments integrate data search in health, nutrition, agriculture and vocational resources and the results should be discussed with the CDC and other members of the community. The community assesses the situation, identifies the problems and what is recognized as priority needs become targets of SCHAP.

Needs and problems of the community and the available local resources are utilized to link in-school and out-of school learnings through SCHAP. While schools provide instruction on the relevant topics, the community activities will focus on their participation and roles in meeting those needs. The primary schools serve as community education centres providing "extension" services and where necessary, utilize the assistance of the staff of the Teacher Colleges.

The school plans its own activities for a year-round time-table, based on the subject learnings that could be "extended" to the community. The activities can be distributed and staggered among the various classes who will engage in some community-oriented activity. This programme is discussed with the Community Development Council or with women's groups and other target audiencesso they can identify which areas are of their primary interest or need, and what inputs are expected from the teachers and pupils in the school and the community. The following listing for such a programme, which ensures participation all year round by all classes:

Programme Activities

1. Safe Water Supply and Sanitation

   - out of school learning
   - school sanitation campaign
   - construction of latrines
   - community sanitation day
   - monitoring water well quality
   - on-site water well maintenance

2. Control of diseases

   - environmental sanitation
   - disease surveillance
   - personal hygiene drills
   - small talks in communicable diseases

3. Home, Child Care and Nutrition

   - child-to-child programme
   - home gardens
   - home hygiene
   - growth monitoring
   - food handling and preservation
   - home crafts
   - weaning foods

4. Access to health services

   - school health records
   - immunization
   - first aid
   - deworming programme

5. Personal Hygiene and Physical Education

   - child health day or week
   - sports fitness tests
   - sports contest

Other activities to promote the SCHAP include:

a) Visits to schools by parents and to homes by teachers, especially on health status of particular child, or exchange of information on health, nutrition, agricultural and vocational practices.

b) Cultural activities related to ground-breaking or inauguration of well, immunization and family planning campaigns, school fair and agricultural exhibits.

c) Mothers' workshops on sanitation, child care, nutrition, immunization, etc.

CHAPTER 7

PRE-SERVICE AND IN-SERVICE TEACHER EDUCATION

Nutrition education programmes by themselves have little chance of bringing about change, if teachers do not relate what they teach to the needs and problems of the community they serve. In order to accomplish this, they need training in how to do this effectively. Their training must necessarily contain the ingredients that will make them think and do as desired. Such training refers to the in-service re-orientation for teachers who have had no opportunity to widen their knowledge in the context of community education in nutrition and for pre-service teacher education which develops not only skills in both pedagogy and community development but also knowledge related to health and nutrition.

Roles of the Teacher

To be effective, the teacher is expected to:

1. Use local language in class instruction
2. Link classroom activities with community related subjects
3. Organize pupils in groups to engage in practical activities
4. Use personal efforts to improvise materials
5. Relate topics from other subjects and link classroom learning with pupils' experiences in the community
6. Supervise pupils' practical activities
7. Show concern for pupils and encourage self-help activities in asking them to provide their own locally available learning materials
8. Plan field surveys for pupils to collect specimens, etc.
9. Organise out-door activities
10. Use instructional units and local resources as teaching aids
11. Use the localised village workshops for demonstration purposes
12. Encourage pupils to think by providing mental drills
13. Assess pupils' achievements
14. Engage community craftsmen as resources for his teaching
15. Assess his work
16. Take measures to avoid further mistakes in his work.

Out-of-school, the teacher performs the following roles as adult educator and extension worker:

1. Conducts adult literacy classes
2. Takes part in gardening and community farming
3. Teaches out-of-school children
4. Participates in village construction work
5. Undertakes practical arts activities
6. Engages in cultural activities as a resource person
7. Disseminates ideas and services to the community through demonstration and exhibits
8. Makes supporting agencies aware of community needs
9. Cooperates with extension agencies working in the community
10. Participates in
    i) Construction, extension and repair of school buildings
    ii) Construction of water wells and latrines
    iii) Planning and organization of village workshops

As a change agent, the teacher (a) takes part in meetings at community level, persuading and motivating people to change (b) makes people sensitive to their needs, (c) participates in local community surveys for local resources in teaching and problem solving (d) makes people aware of improved health, nutritional and agricultural practices and (e) assists in planning solutions to people's problems by organizing self-help and construction projects, sessions for crafts, thrift and credit societies and cultural activities to raise funds.

31

(The roles presented above are summaries of activities of Bunumbu project-trained teachers who were observed in ten pilot schools and communities. No one teacher was observed to be performing all the roles but various combinations of these roles were performed by the different teachers observed. - S. Bockarie, Rural Education Evaluation in Sierra Leone. 1986)

Pre-service teacher education

The pre-service training in nutrition education is integrated into the Home Economics programme with Community/Thematic approach. The skill--oriented type of programme promotes linkages between teacher education and the primary school curriculum, new approaches to teaching practice, training in curriculum writing, use of local materials for developing teaching aids and the integration of learning activities across subject areas and productive work orientation.

Below is an outline of the syllabus for food and nutrition in the Teacher Certificate Programme:

1. General introduction to nutrition, definition of foods, nutrients and nutrition. How and why nutrients in the food are used by the body.
2. Classification of foods, plant and animal foods, food groups.
3. Food value - especially local foods. a) Sources b) Functions c) Deficiencies and digestibility.
4. Physical changes in food during cooking.
5. Kitchen hygiene.
6. Home garden. a) planning, preparation and care of a small kitchen garden b) economy of home production c) traditional and new crops that can be grown.
7. Malnutrition. a) deficiency symptoms and diseases b) mal and under nutrition.
8. Basic methods of cooking and the principles involved e.g. boiling, frying, stewing, steaming, baking, grilling.
9. Choice and cost of foods in season. Both practical and theoretical knowledge will be gained, but most of the theory work should be done through self-study and assignment.

Practice teaching provides opportunities for the student teacher to conduct community surveys, organize Home economics/Home management classes for mothers, development projects in health and nutrition, develop school farms and vegetable gardens, participate in cultural activities,craft training, etc. In general, the trainees embark in nutrition and income generating activities with women and conduct extension work in nutrition.

In-service Training for Nutrition Education

The main purpose of in-service training is to upgrade the teaching skills and knowledge of the untrained or unqualified teachers in health and nutrition. The introduction of the new primary curriculum necessitates the orientation and training of the school teachers in the use of the instructional units with its methodology, and the applications of community organization approach in nutrition. The modular approach in promoting teaching-learning in local environments provides the initial training to key primary teachers in nutrition and health education, who in turn become trainers and resource persons. These teaching modules (see Part III) have strong emphasis in the use of community participation in understanding health and nutrition situations in the community, development of concepts and learning activities for health and nutrition and exemplars for teaching with visual aids. The school-based mini-workshops assist newly appointed teachers in the school, upgrade-older teachers' educational skills and involve community leaders in adult education activities.

Training in curriculum writing techniques and in community participatory activities are conducted during review of instructional units and examining workshops to plan for outcomes in out-of-school activities.

CHAPTER 8

INTEGRATED HEALTH AND NUTRITION

IN PRIMARY SCHOOLS

Nutrition education in school should be directed towards the health problems of the child. Because the health of the child is influenced primarily by what he does, not by what he knows, health education should be behaviourcentered. Teachers, therefore, need to accept the fact that the promotion of health is an integral part of education. They must do away with traditional teaching methods that put much emphasis on rote learning and chalk and talk methods to provide information, and rely instead on "doing" or activitycentered learning and changing behaviour. Just as the mother has shaped to a great extent the health personality of a child by the time he comes to school, the teacher's health practices and learning activities in school are important on the pupils. They must have the support of a well-defined syllabus with instructional guidelines and approaches.

Environmental Studies for Primary Schools

Environmental Studies is a new subject for classes I and II in primary schools. Its aim is to provide learning experiences for the children to develop understandings about the nature of the social, biological and physical environments, to improve attitudes and practices concerning healthy living and to appreciate the services and interactions among people and between people and things in the environment. It integrates learnings in Social Studies, Science and Health Education.

The learning concepts for Classes I and II are categorized under Home Environment, School Environment and Usefulness of Things in the Environment. Through these unifying concepts are six themes or strands: (1) Healthy living (2) Groups (similarities and differences) (3) Customs and traditions (4) Interrelationships (5) Services and (6) Changes. (See Tables I - II Scope and Sequence Chart for Environmental Studies)

Integrated Learning Activities

Health and nutrition concepts can be integrated into other curriculum areas. For example:

Music
- Action songs based on care of body parts
- Song about ingredients in oral rehydration solution
- Drum rhythms for particular health habits/practices, spelling, and exercises

Language Arts
- vocabulary study and word games based on health and nutrition activities
- writing paragraphs about "How to prepare beniseed mix," "How I feed my baby brother," "How I care for my home garden", etc.
- story-telling about illnesses at home
- essays on importance of balanced meal; functions of food

Fine Arts
- cut outs for picture collage of nutrition concepts
- drawing food charts, objects used in personal hygiene, health activities of members of the family, etc.
- drawing health and nutrition practices i.e. breast feeding, ORT, immunization, child growth
- drawing the food pathway

Agricultural Science
- making a calender of farming activities according to food values

TABLE I

SCOPE AND SEQUENCE CHART - ENVIRONMENTAL STUDIES

PRIMARY I

	Theme	Term I Exploring our Environment	Term II Patterns in the Environment	Term III Proper Use of Things in the Environment
1.	Healthy Living	Parts of the body. Personal Hygiene.	Good eating habits. Cleanliness in the environment.	Food from plants and animals. Proper use and care of things our environment.
2.	Group (Similarities/ Differences)	Members of the family. Animals & plants in the surroundings. Water in the environment.	Things at home and at school. Places where plants and animals live.	Respect for school properties.
3.	Customs and Traditions at home	Greetings and respect for elders. Celebrations and ceremonies	Observing school regulations in community. Celebrations at school.	Festivals in the community e.g., Ramadan, Christmas. Objects used in festivals.
4.	Interrelationships	Roles of members in the family. Roles and responsibilities in school.	School regulations.	Proper use and care of health facilities at home and in school.
5.	Services	Occupations and services of parents.	Occupations in the environment.	Things and services found in the market.
6.	Changes	Changes in children, plants and animals.	Changes in time, season and weather.	Making water safe to drink. Sanitation at home, in school.

TABLE II
SCOPE AND SEQUENCE CHART - ENVIRONMENTAL STUDIES
PRIMARY II

	Theme	Term I Exploring our Environment	Term II Patterns in the Environment	Term III Proper Use of Things in the Environment
1.	Healthy Living	Care of different parts of the body. Keeping neighborhood clean.	Things that make people ill. Care of the body when ill.	Foods we eat, care of the foods. Care of household utensils. Protecting water sources.
2.	Group (Similarities/ Differences)	Groups of people in the school. Groups of people in the neighborhood.	Other living and non-living things in the neighborhood.	Leaders of our neighborhood and their functions. Areas of non-living things in the environment.
3.	Customs and Traditions	Festivals/celebrations in the neighborhood and their significance.	Sanctions and taboos in our neighborhood.	Preparation for festivals and celebrations. Activities during festivals and celebrations.
4.	Interrelationships	The role of the school as part of the neighborhood.	How the neighborhood meets the needs of the school.	Other facilities in the neighborhood.
5.	Services	Occupations using material things in the neighborhood.	Materials produced in the neighborhood.	Movement of people and goods in our neighborhood.
6.	Changes	Time daily routine in school. Growth in plants and animals.	Changes in physical environment. Change in state of matter.	How we change the physical environment in the neighborhood.

and nutrients in school garden
- mapping garden plots for year round produce

Mathematics
- equivalent measures for common household items, i.e. milk or sardine tins, beer bottles, bottle caps, etc.
- fractions in food servings, recipes, distribution of crops
- percentages in crop production, population statistics
- graphs and tables using health or nutrition statistics, i.e. growth chart, height for weight, weight for age.

Social Studies
- food taboos among ethnic and religious groups
- visits to health clinic,food market, construction sites of water well, latrine, etc.
- identifying occupational activities related to food
- appreciating roles of the health and nutrition worker
- discussing effect of climate on food storage and preservation
- community activities for health and nutrition

Practical Arts
- making health tools, i.e. palm fly swatters, water dippers, bucket covers, basket food tray covers, plate rack, cooking stove, etc.
- drafting room arrangements, garden plans

Science
- water, air and soil pollution
- water and insect-borne diseases
- biological changes in pregnancy and lactation
- diseases caused by lack of nutrients
- describing characteristics of malnourished children
- experiments in food preservation, i.e. sundrying, chemical additions, smoking
- life cycles of parasites and vectors in water and food

Home Economics for Classes III to VI

The Home Economics curriculum is divided into three areas: Food and Nutrition, Needle Work and Home Management and Child Care. In the school timetable, these subjects are taught in the first, second and third terms respectively. Within the context of the Bunumbu project, Home Economics aims to make a valuable contribution towards the development of health and happy families through nutrition, hygiene, child care and home management, and an awareness of vocational opportunities in home economics related activities and of basic skills in needlework, child care and home management. (See Appendix IV - Scope and Sequence for Home Economics in Primary Schools)

Integrated into these learnings are the out-of-school activities of pupils concerned with the improvement of nutrition through demonstrations in better use of available foods, production of essential foods in home gardens, the prevention of food wastage through improved storage, preservation, handling and marketing and wise selection of foods for the daily diet of the individual and the family. Likewise, under community development projects, the pupils participate in the promotion of health and sanitary facilities both in school and in the community.

Integration of Health and Nutrition through Problem-Solving

To make the learnings in health and nutrition relevant to community situations, they should focus on the needs and problems of the community. The problem-solving approach becomes a useful tool for integrating health and nutrition:

(a) Defining the problem: Small local surveys for health and socioeconomic needs, gathering epidemiological data, health records of the pupils and morbidity information in the community will expose the school

child to experiences within and outside the school, and help the child to understand the problem.

(b) Analysis of the problem: Descriptions and considerations of the cultural factors which influence the problem, the distribution and magnitude of the problem, and the causes of the problem should form part of the content of the health and nutrition experiences.

(c) Finding solutions: Pupils explore the means and resources to use in order to reduce or eliminate the problem. Parents, children and other members of the community are involved in appropriate health and nutrition behaviour.

Practical teaching and activities outside the classroom to utilize local facilities and resources will help raise the awareness and consciousness level of the pupils and mothers to motivations that could lead to new behaviours and actions.

The training modules for teachers in health and nutrition and the guidelines for SCHAP provide strategies for identifying the factors related to the problem and integrates community participatory activities and out-of-school learning.

CHAPTER 9

EVALUATING TEACHING - LEARNING EFFECTIVENESS

Evaluation is a process of finding out how well things are being done and how effective or efficient are the methods and outcomes. It measures the amount of success in achieving pre-determined objectives, the value of the input variables in relation to the outcomes and the benefits derived from the activities. Evaluation is an on-going process: at the beginning in setting out objectives and planning for the activity, during the course of the activity, to allow for adjustments or corrections where necessary, and at the end, to assess the results and determine how the programme can be improved. It should be a cooperative effort of the school and the community.

The variables that need to be evaluated in health and nutrition education are the (a) objectives - its formulation and its setting (b) the target groups, instructional materials and resources - its quality and availability, (c) the processes and activities in training, teaching-learning experiences, individual performance and community participation and (d) the outcomes - knowledge, attitude, practices and facilities built or other products used.

The Setting and Target Groups

The community, with its socio-cultural characteristics, i.e. economic status, role of women, food availability, beliefs about food, organized groups, services, etc. and the school provide the settings for any educational activity.

The individuals or groups with nutritional needs in the community, community leaders, education personnel and their roles and resource persons comprise the target groups, while school buildings, equipment, instructional materials and funds are the material inputs.

Performance Evaluation

Well-defined objectives in health and nutrition education establish the criteria against which to measure teaching-learning activities and outcomes. The performance objectives have to be set out carefully - who are the targets/subjects, what is the expected behavioural change, the conditions/processes to attain such change and the indicators to show outcomes. The statement of objectives should be in behavioural terms and specific.

For example, when the objective is stated: "...after visual presentation, the pupil lists the three types of foods needed by a growing child.....", it provides directions for its evaluation. The response, be it written or oral will show the degree of achievement of the pre-determined objective. If the objective refers to "acceptance and use of a beniseed supplementary food for infants" or "preparation of oral rehydration solution for diarrhoea", after a mothers' workshop, the followup evaluation of the use and frequency, or the number of mothers who can prepare ORS will reveal learnings in the expected behaviour. Thus, evaluation will depend upon the expected behaviour.

Health and Nutrition Education Activities

Teaching-learning activities in the classroom and out-of-school activities of pupils and teacher, the educational approaches and use of local resources and teaching aids are process variables that need to be evaluated.

The extent of community participation, the roles of the community leaders, the number of and attendance in group meetings or workshops, the quality of group discussion, the number of family

visits and the performance of individual roles, etc., will reflect effectiveness of the educational activities. Community participation, being part of health and nutrition activities, can also be the result of such activities, and in nutrition education, it is evaluated both as a process and an outcome.

Evaluation of Outcomes

The health and nutrition knowledge, the attitudes or behaviour after the educational activities, are the indicators for evaluating effectiveness of the teaching-learning experiences. Changes in teacher behaviour will also show effectiveness of training programmes.

Other outcomes would be acceptance and practice of improved health and nutrition behaviour, the use and maintenance of health facilities, improved nutrition, health status of individuals and groups and sanitary conditions in school and community.

Tools for Evaluation

School learning experiences are subject to many methods of evaluation, and the choice would depend on the expected outcomes.

(a) Knowledge achievements and student progress may be measured by oral and written test. Objective tests, such as multiple choice, completion or matching type tests are easier to administer than essay type tests.

(b) Attitudinal measures are difficult to measure, but essay questions that reflect predispositions to health or nutrition issues will indicate attitudes, i.e. "why I do not like or like.....(to use the toilet, to eat eggs, brush my teeth, etc.)", "I like or do not like ..... (large families, immunization, working in farms, etc.)." The observations of attitudes can be made on pupils towards cleanliness, sanitation, food habits, out-of-school activities, etc.

(c) Many methods could be used to measure changes in health and nutrition practices, i.e. direct observation, sanitary survey of the school environment, health habit questionnaire, child nutrition survey, pre-test and post-test studies, etc.

The community survey instruments used at the start of any educational activity, to collect baseline information, may be used to measure changes in community dimensions after community participation in the programme. Interviews, checklists, questionnaires, observations, and committee reports of the Community Development Council are valuable tools to determine extent, quality and outcomes of community participation.

Health data which can be obtained from the health clinics or dispensers will reveal the frequency/use of health services and facilities, trends in morbidity from water-and excreta-borne diseases or nutritional deficiencies and quality of community participation in health training or sessions.

PART THREE

TRAINING MODULES FOR TEACHERS

"...The content of the teacher training programme (in Bunumbu Teachers' College) and the primary school curriculum were made to agree so that teachers in training are made familiar with the materials they will be using."

Dr. Sandy Bockarie, Science Curriculum Development Centres, Njala University College in a paper, "Antecedents of Curriculum Planning, Development and Implementation: Their effects in the Primary School Curriculum situation in Sierra Leone," presented at the National Seminar on Primary School Curriculum, Institute of Education, October 7 -11, 1984.

INTRODUCTION

The training modules presented in this section are structured for self-study, to be supplemented by learning activities that can be undertaken individually or with groups in a classroom setting. In this way, the trainee participates actively in his own training. Each module consists of four parts: (1) the overview or background information presents the main ideas, (2) the objectives provides a list of behaviours expected of the learner upon completion of the modules, (3) the concept development which formulates the content and the learning activities which enable the trainee to verbalize knowledge, demonstrate some learning behavior or task related to concept development and (4) community participatory activities which suggest areas for involvement of the community or for outreach services of the teachers and pupils.

The ultimate aim of these modules is to provide for the development of knowledge, attitudes and behaviours which would improve the nutritional status and health of the child and the families in the community. It is the role of the teacher to motivate and cooperate with community organizations in the locality, such as Community Development Council, Health Committee, Parent Teacher Association, etc., in analyzing problems of nutrition, implement the solutions to these problems and to show leadership in community education.

To be able to achieve the main ideas and tasks, pay particular attention to the objectives, and study carefully all that is written under concept development. One trainee may team with others in a small group, to discuss and undertake the learning activities, after having read the previous sections. The entire group of trainees will then meet to discuss the section on community participatory activities, select a suitable activity or task and plan with the community organization for the activity. Coordinate with your supervisor, and the Community Development Department of the College or with the headteacher in the school, so that the targets are involved in problem analysis and problem solving activities as well as in a variety of learning situations.

These modules may also be used as a continuing guide for classroom teaching and participatory activities. They can be adapted to suit local conditions and resources or modified for additional learning activities. The learning activities may be used for formative evaluation, while the objectives suggest the areas for summative evaluation.

MODULE 1

NUTRITION IN COMMUNITY EDUCATION

I. Overview

Nutrition is the study of food and the way our bodies use food. A good knowledge of nutrition is essential for the maintenance of health especially when food habits temporarily or permanently deteriorate as in illness, old age, poverty, nutritional diseases, crop failure and ignorance. Its ultimate aim is to improve food patterns for better health and to assist the community to undertake its responsibility in solving nutrition and health problems. It is essential to reinforce or correct family teaching about food and nutrition because the poorly nourished child is a poor candidate for good education.

This module is concerned with the following main ideas:

1. Nutrition education is a way of teaching us which local foods are good to eat, to safeguard one's health.
2. Nutrition education must be adapted to the local situation.
3. Teaching approaches for nutrition depend upon the target audience and the problems at hand.
4. Nutrition education in both formal and non-formal education depends upon the active participation of the learners or target audience.

II. Objectives

At the end of this training module, the learner should be able to:

1. Discuss the importance of nutrition education.
2. Explain the cultural elements that determine good nutrition.
3. Identify some problems that nutrition education can effectively concern itself.
4. Describe techniques in teaching nutrition for both formal and non-formal systems.

III. Concept Development and Learning Activities

1. Individual progress and national development are both dependent on health - the health of the individual and the health of the nation. In Sierra Leone, 75% of the people are engaged in agriculture, but the subsistence farming that is predominantly in practice leads to undernutrition. In this connection, the major public health problems are high infant and young child mortality, and developmental disorders associated with the insufficient energy and protein intake. As such, the government has among its health objectives, the following: a) control of major endemic and communicable diseases b) reduction of maternal and infant mortality and c) the improvement of health awareness by the population and community participation regarding hygiene habits and nutritional knowledge.

   In this context, nutrition education is aimed at behavioural change and improved physiological indicators of nutritional status.

1.1 Discuss how nutrition issues are related to the following statistics:

Crude birth rate: 49 per 1000
Crude death rate: 28 per 1000
Infant mortality rate:
over 200 per 1000 live births
Child mortality rate:
366 per 1000 live births
Maternal mortality rate:
4.5 per 1000 deliveries
Life expectancy at birth:
males 49.6 yrs.
females 50.1 yrs.

1.2 Describe the roles of the individuals concerning these problems.

2. One's nutritional state is affected by a complex interaction of factors. The following is a schematic diagram of the factors which affect food choice and nutritional status:

2.1 Discuss why knowledge and motivation are not sufficient to change food choices.

2.2 Give examples of cultural habits of eating that affects one's nutritional state.

2.3 Explain the effect or changes in the individual in terms of work, activity and disease, due to one's nutritional state.

3. In general, food availability and socio-economic situations affect nutrition. Thus, it does not concern itself solely with consumption and its physiological effects, but also on food production, storage and access to foods.

3.1 Organize two panels to debate on:
a) Poverty is (not) the major constraint to nutrition in Sierra Leone.
b) Classroom teaching will (not) change behavior in health and nutrition.

4. The most common themes relating to health and child development are:
a) special nutritional needs of vulnerable groups, including pregnant and lactating women, infants and growing children, and weaning practices.
b) balanced diets and functions of food groups.
c) feeding during illness, especially the need to rehydrate and nourish young children with diarrhoea.

4.1 Identify the targets for nutrition education in the community.

4.2 Explain why these targets are considered groups "at risk".

5. Those themes which relate to agricultural concerns are:
a) backyard production and consumption of vegetables and other protective foods.
b) the cultivation of new varieties and the nutritional consequences of cash cropping.

5.1 Discuss why the content of nutrition education has multidisciplinary aspects.

6. Those relating to home and personal hygiene and sanitation are:
a) Protecting water and food from contamination
b) Controlling water-site and water-related diseases
c) Preventing water-washed diseases.

6.1 What diseases can be attributed to "lack of water?"

7. Nutrition education relates scientific knowledge to the total strategy for survival. Its form, method and content are dependent upon the social and educational context.

Whatever the method and dynamics of teaching nutrition, the child's level of mental development and interests and the local resources available should be the essential guides. The child should learn by doing things and entering into the discussions, not solely by listening, reading and repeating. The teacher induces the child to work with concrete materials, to observe and investigate

7.1 Describe some practical activities of pupils outside the classroom that would enhance nutrition education.

7.2 Why types of teaching aids can be useful for nutrition learning?

the environment, to reflect upon their experiences, to choose between the worth and consequences of actions, and to judge and express their conclusions about desirable behaviour.

The teacher must promote and guide the action, awakening in the child new interests and behaviour, and to build upon what had already been inculcated at home, which tends to facilitate a productive and healthy life. While the interest of the parents concerning the health of their children is easy to see, it may be difficult to motivate the change in food attitudes and habits of pupils without the involvement of mothers and families.

7.3 Role-play a situation where a teacher /nutrition educator explains to the mother that the child's lack of activity, listlessness, etc. may be due to undernutrition. How would you "encounter" the mother with problem?

THINGS TO REMEMBER

The objectives of health and nutrition education in primary schools are:

1. *To enable children and their parents to understand that proper nutrition is essential to good health, normal physical and mental development.*

2. *To help children develop desirable practices in relation to food, hygiene and environmental sanitation.*

3. *To promote the role of nutrition in the prevention of illness and deficiency diseases.*

4. *To teach children about the selection, preparation, and preservation of foods.*

5. *To stimulate adequate food production and consumption of food resources in the community.*

IV. Community Participatory Activities

1. Make a few home visits to make preliminary survey of the state of nutrition of children under five years old. Discuss with the mothers their possible explanations for the state of the child.

2. Develop a 15 item questionnaire to determine the attitudes, knowledge and practices of mothers related to nutrition and each one interview 3 to 4 mothers. (See Appendix for Community Nutrition Survey Form as model.) Discuss with the class the implications of your collective findings.

MODULE 2

NUTRITION REQUIREMENTS FOR SPECIFIC GROUPS*

I. Overview

Malnutrition affects certain individuals or groups more than others. This may be due to ignorance about nutritional value of locally available foods and preparation of balanced diets, which lead to poor choice of foods and undernutrition. Certain groups in the population are especially vulnerable to nutritional problems such as the case of pregnant or lactating women, and infants below 2 years old, whose food habits need to be improved or enriched.

This module is concerned with the following concepts:

1. Infants 6-24 months of age need supplementary diet for growth.
2. Pregnant and lactating women require balanced diets and extra foods.
3. Manual and hard workers need to have more calorie intake for energy.
4. Invalids or convalescents need nourishing food to restore their strength.
5. Some illnesses are caused by imbalanced diets or food deficiencies.

II. Objectives

At the end of this training module the learner should be able to:

1. Prepare a variety of supplementary diets for infants 4-24 months of age.
2. Demonstrate the ways of feeding babies of 6-24 months of age.
3. Explain the importance of the diet of pregnant and lactating women.
4. Choose and plan a variety of balanced meals for pregnant and lactating mothers.
5. Illustrate the types of food required during stages of convalescence.
6. Compare the energy needed for some activities per hour.

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*This module should be learned with practicals in the Home Economics kitchen or laboratory.

III.	Concept Development and	Learning Activities

1. The foods we eat whether liquid or solids can be divided into three groups depending upon what nutrients they contain and the function of the nutrient.

   I. Body building group: Children need foods rich in protein for growth. Adults and children need body building foods to make new blood, hair, skin, etc. as they wear out.

   II. Warmth and energy group: Foods that contain carbohydrates and fats are called energy foods. The body needs fuel to provide warmth and energy.

   III. Protective group: Foods that contain vitamins and minerals give the extra sparkle to health and help the body to fight diseases. Included in this group is water as it is necessary for the blood and for the transportation of the other nutrients.

1.1 Look at the chart of food groups and identify the foods belonging to each group. Why are they also classified as Go, Grow and Glow foods?

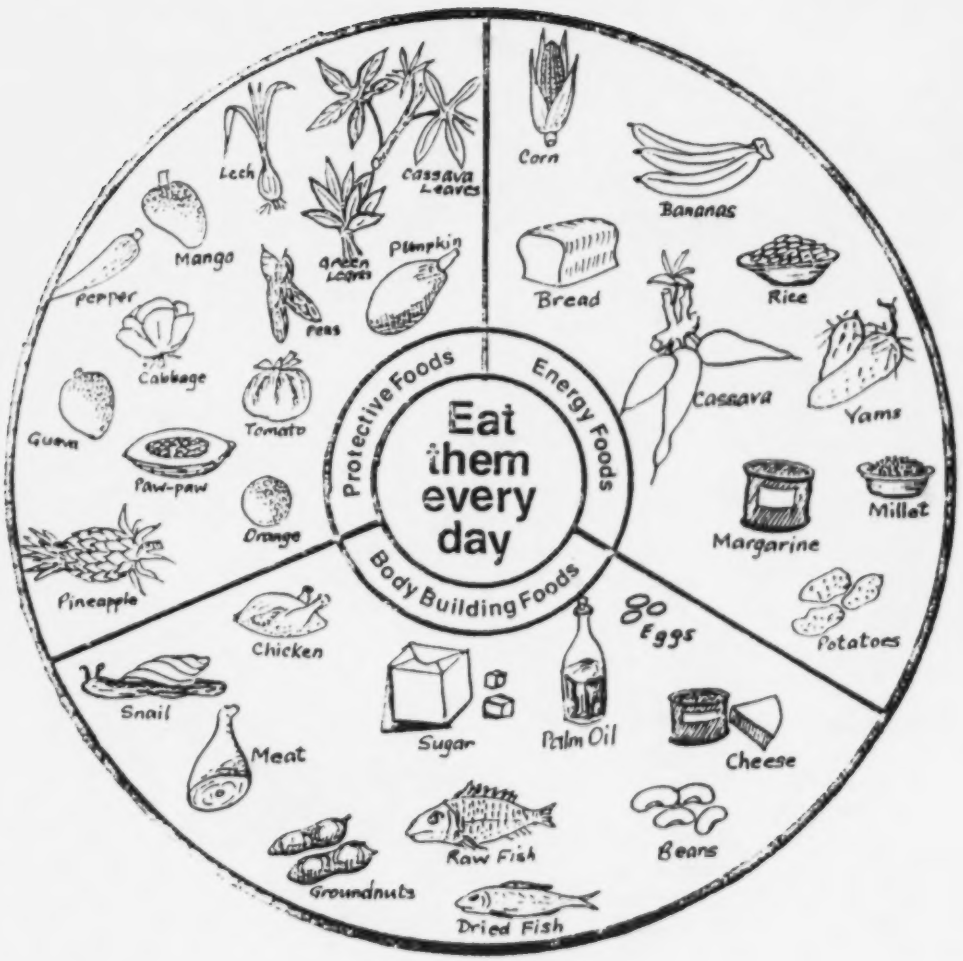
1.2 These foods consist of nutrients. Which are the six nutrients?

1.3 Discuss what you think is the longest time for man to survive without water? People on hunger strike refuse food but are forced to take water. Why is this so?

2. Good food habits mean that one is willing or strives to eat the foods which build good health. When essential nutrients are available in our diet, we say the food is nourishing. The individual needs for these nutrients depend upon the 1) height, weight, surface area, age and sex and 2) muscular work. Energy found in the foods is needed for maintaining the processes of living - breathing, circulation, replacement of tissues, the maintenance of the body temperature and digestion. Basal metabolism represents the minimum amount of energy needed to carry on the vital body processes. More energy is needed by an individual to carry out the everyday activities in addition to the needs of basal metabolism.

3. Energy is measured in calories, kilo calorie, joule, kilojoule or megajoule. Today all scientists are changing over

3.1 Compute for the basic energy needs for an individual of your weight, in joules and in calories.



Food Wheel - Chart of Food Groups

from use of calorie to the use of joule. One calorie is equivalent to 4.2 joules. If one person's body weight is 70 kg (or 154 lbs) he needs 4.2 joules per kilogram (2.2 pounds) of body weight per hour. For a period of 24 hours, he needs:

70kg x 4.2 (joules) x 24 (hours) =
7056 joules or
7056 -- 4.2 = 1.444 calories

If you convert 7056 joules to kilo joules, the person needs 7.05 kilojoules or kj. One can convert kj to megajoules (mj) by dividing the amount by 1000, thus; 7.05 kj = .007mj (megajoule). These values represent basal metabolism needs.

4. Below you will find examples of how much energy you need per hour of some activities:

Activity for one hour	mj
Resting in a chair	0.063
Writing	0.084
Typing	0.126
Peeling potatoes, serving	0.168
Painting a house	0.63
Walking fairly fast	0.84
Wood cutting	1.59
Running	2.1
Swimming	2.3

4.1 Change these megajoules (mj) to calories.

4.2 Based on the table of energy need according to activities, how much megajoules do you think a farmer would need for four hours active work? If you add this to his basic metabolism needs, what would be his daily requirements in joules? (Convert megajoules into joules)

5. The intake of an individual for his energy food needs comes from carbohydrates which contains sugar, starches and cellulose. The important source of carbohydrate food is often called staple. In Africa, rice, corn and cassava are staple foods. In addition, it is the cheapest food, bulky, easily satisfies hunger, and provides balanced meal with other foodstuff. Fifty five to sixty percent (55 - 60%) what is eaten during the day should be carbohydrate food.

5.1 Identify the staple foods of Ireland, U.K. or Europe, India and China.

5.2 Think of the Sierra Leone diet for a day. How much (in percent) of the food intake consist of carbohydrate?

6. The following table gives average everyday needs for people of different ages:

6.1 Discuss what would happen if an individual takes more carbohydrates than he needs.

Children	1 - 11yrs.	4.600kj	1.100kcal
Boys	12 - 14 "	11.300kj	2.700kcal
"	14 - 18 "	12.600kj	3.000kcal
Girls	12 - 14 "	19.600kj	2.300kcal
"	14 - 16 "	10.000kj	2.400kcal
"	16 - 18 "	9.600kj	2.300kcal
Men	55 - 75 "	10.000kj	2.400kcal
Women	55 - 75 "	7.100kj	1.700kcal

7. Fats and oils are also important sources of energy. One gram of fats gives more than two times of energy than one gram of carbohydrates. They are the best energy foods, but they are also expensive. Vegetable fats are more desirable than animal fats because of the incidence of heart disease related to the cholesterol found in animal foods. Vegetable fats are cheaper, not as bulky as carbohydrates and they also tend to leave the stomach relatively slower, and helps delay the onset of hunger and contributes to a feeling of satiety following a meal.

7.1 Make a list of the functions of fats in the human body.

8. Some protein foods are better for body-building than others.

Soya beans	34%	protein
Groundnuts, Legumes	23%	protein
Dry Beans and Peas	20%	protein
Corn, wheat, millets,	8-10%	protein
Dark green leaves, Irish potatoes	3-7%	protein
Cassava, sweet potatoes, plantain, cabbage	1%	protein

8.1 Explain what happens to excess protein intake. Why is it extravagant to eat more protein than needed?

8.2 Why is there only 18% of protein in fresh fish while there is 63% in dried fish?

9. The following table shows the amount of protein that different individuals need during the day:

Child	53 grams
Woman	53 grams (average weight, most occupations)
teenage girl	53 grams
Man	65 grams (average weight moderately active)

The daily allowance of protein should be divided among the various meals of the day. There is no advantage in eating more protein than the body needs for growth and repair.

10. Various people have need for protein because of particular purposes:
    (a) Healthy adults need protein to repair their bodies.
    (b) Pregnant women need protein for repair and for building the new baby who is growing inside them.
    (c) Nursing mothers need protein for repair and also to make milk needed to feed the growing child.
    (d) Children need protein for repair and growth.
    (e) Sick adults need extra protein to repair the harm caused by their illness.
    (f) Sick children need extra protein for repair as well as protein for growth.

11. The foods which contain plenty of vitamins and minerals are called protective foods. Eating them protects people from certain diseases or weaknesses. Most foods are mixture of nutrients; protein and energy foods contain vitamins and minerals as well. Thus, when a person lacks proteins and joules, he usually lacks vitamins and minerals, too.

9.1 Look at the poster showing foods and their protein content. How much groundnuts will give you 50 grams of protein? How can you increase the protein value obtained from vegetables?

10.1 Look at the ingredients that are used for preparing Benimix or porridge for infants. Why is groundnut oil added to the porridge? Why is bean flour an important ingredient in Benimix?

11.1 Looking back at the Food Wheel, identify the protective foods.

Vitamins are the organic substances needed in small amounts for normal functioning of the body. They are named Vitamin A, B, C, D and so on. Mineral elements are present as salt in body fluids, in body acids and alkalis and are part of many tissues. They are also an essential element in certain hormones. These are calcium, phosphorus, iron and iodine. A reasonable varied diet should not go short of these minerals, but their absence is also likely to cause certain illnesses.

11.2 Examine the table on importance of vitamins and identify which sources are better eaten raw than cooked.

12. See Table no. 1 for a summary of the value of vitamins and minerals.

12.1 Describe the characteristics of scurvy, pellagra and rickets.

13. The human body contains nineteen important mineral elements but only four which are likely to be absent in the diet will be discussed here.

13.1 Explain why certain groups of people need more calcium than others.

13.2 Discuss why women are more prone to anaemia.

13.3 State the way people far from the sea counteract the absence of iodine in their diet.

13.4 Look at the label of a multi-vitamin tablet and list of minerals that are found in them. Which types of people need these minerals?

14. When a child is born, his body, especially his brain keeps on growing fast. He grows so fast that he doubles his birth-weight in the first six months of his life and triples it during his first year. If a child is to be able to grow as fast, he needs plenty of protein foods. In the first month of his life, protein comes to him in his mother's milk but from the age of four months onwards, he must have plenty of other protein foods added to his porridge. After a child is one year old he grows more slowly but he is still growing, and he still needs plenty of protein food.

14.1 What other nutrients need to be included in the infants' diet after 6 months?

Table No. 1 Vitamins and their Importance

Vitamins	Purpose	Sources	Result of Deficiency
1. Vitamin A	- growth in children - good eye-sight especially in the dark	milk, butter, egg yolk fat fish or liver, cheese	- night blindness
	- healthy tissue in nose, mouth and throat	carrots, tomatoes, mangoes, cabbage, spinach	- xeropthalmia
2. Vitamin B (B_1-B_{12})	- growth in children	unpolished rice, pork, meat, peas and legumes	- beri-beri
Thiamine B_1	- healthy nervous system		
Riboflavin B_2	- enables the body to produce energy from food	liver, fish, eggs, milk, green, vegetables	
nicotinic acid niacin B_3	- for healthy skin and nervous system	meat, especially liver groundnuts, beans, cereal bran, breads	- pellagra
3. Vitamin C (ascorbic acid)	- growth in children - healthy gums - quick healing of cuts and wounds - prevention of scurvy	oranges, lemon, grapes, grape fruit, guavas, paw-paw, mangoes, cabbage, cauliflowers, dark green leaves.	
4. Vitamin D	- formation of healthy bones and healthy teeth - for absorption of calcium and phosphorous in the body.	sunshine, cod-liver oil, sardines, eggs, cheese, margarine	- rickets
5. Vitamin E	- for hormone development	corn on the cob, unpolished rice, honey, dark leafy green vegetables.	

Table No. 2 Minerals and their Importance

Vitamins	Purpose	Sources	Result of Deficiency
1. Calcium	- growth and development of bones and teeth - clotting of blood - proper working of muscles	milk fish, dried fish, sardines, vegetables	bad teeth osteomalacia
2. Phosphorus	- combines with calcium for formation of bones and teeth - enables body to produce energy from food - keeps body cells healthy		
3. Iron	- formation of red corpuscles of the blood	meat dark green leaves leafy vegetables legumes	nutritional anaemia nose bleeding
4. Iodine	- production of hormone in thyroid gland	fish green vegetables near the sea	goitre dwarfism

15. During pregnancy the mother needs extra food to make the baby strong and healthy. Inadequate food consumption during pregnancy and lactation leads to under-nutrition. Most often, food restrictions or food taboos cause the pregnant woman to eat less during pregnancy.

In Sierra Leone, anaemia is a common disorder of pregnancy. An anaemic woman will not have enough red colour in her blood. The blood will be pale, and if we look at the inner side of the lips or lower eyelids, they will be pale, light pink or white. She will easily become breathless after little exertion. Her face and feet may become swollen. Anaemia in pregnancy can be treated by a good mixed diet, but in extreme cases, iron tablets are added to the diet.

15.1 Make list of foods that will supply most of the nutrients a pregnant woman needs.

15.2 Interview a woman who is "high-risk" of malnutrition in pregnancy. Find out how much she was eating before. Divide that portion into four - and show her, that she needs one-fourth (25% extra) more than what she was eating before she became pregnant.

16. During illness, special diet needs to be planned during the three stages of illness. They need to be light, well balanced, easily digested and nourishing.
    (a) Early stage - liquid diet
    (b) Recovery stage - light diet
    (c) Convalescence - nourishing, and easily digestible

16.1 Make a list of foods/dishes suitable to the invalid or convalescent. Give reasons for your choices.

16.2 Explain the types of cooking appropriate for these foods.

THINGS TO REMEMBER

1. *Foods contain different nutrients needed for growth and development, energy and protection against diseases and germs.*

2. *Certain diseases are caused by lack of and insufficient supply of these nutrients.*

3. *Certain groups in the population who are vulnerable to nutritional problems have specific dietary needs.*

IV. Community Participation Activities

1. a) Invite the Community Development Council to sponsor a series of health sessions or mothers' workshops, based on nutritional problems or needs in the community.

   b) Prepare the instructional plan and the visuals/posters that will go with the messages or concepts.

   c) Conduct demonstrations, especially in the preparation of weaning foods and the importance of hygienic practices in food preparation.

2. Plan for a "Child Health Day" in the village and promote the activities, i.e. weighing the infants, selecting the A -1 child of various age groups in school, health talks, dramatizations and other cultural activities, immunization, etc.

MODULE 3

INFANT NUTRITION

I. Overview

The promotion of health of the child and the prevention of diseases start during the pre-natal period. Thus, infant nutrition plays a major role in both physical and intellectual development of the child. Adequate food, medical care and a loving and stimulating environment all contribute to a full development of the child. Pregnant and lactating women need more energy intake and diet supplements to prevent protein deficiency in the infant, just as infants need supplementary foods during their weaning period.

The main ideas in this module are the following:

1. Babies need food in order to grow, learn, and be active.
2. Breast milk is the best natural food for babies.
3. Nutritional requirements of the infant vary from 6 months onward while breast feeding.
4. Children with diarrhea need special foods and drink.
5. Bottle feeding has its limitations.

II. Objectives

At the end of this training module, the learner should be able to:

1. Give reasons why foods taken during pregnancy are important to fetal development.
2. Describe the mother contacts with the infant which promote security and love for the baby.
3. Explain the advantages of breast feeding.
4. Identify the diseases or illness that affect the infant with low birth weight.
5. Describe the types of food that an infant needs to take after 6 months.
6. Provide guidelines for artificial feeding.
7. Demonstrate the preparation of the "special drink" for dehydration from diarrhea.
8. List the foods that a child with diarrhea should be able to eat.

III. Concept Development and	Learning Activities
1. The nutrition of the child begins in the womb of the mother. The nutrition of the mother-to-be and the care given to her physical condition to prevent infection to herself and the unborn child help to have a healthy baby. Good nutrition helps protect the body against many infections. A pregnant woman or a lactating mother needs to eat more and of the right food to make the baby strong and healthy and to produce more milk for the baby. She is truly "eating for two". A variety of foods will supply most of the nutrients that a pregnant woman needs. She would take 25% more food than what she was eating before she became pregnant.	1.1 Identify the kinds of food a pregnant woman needs to eat more of. 1.2 Describe the practice you know of which gives a pregnant woman special foods. Justify if it is nutritious or not. 1.3 List the kinds of right food and its effects on the development and growth of the unborn child.
2. A child starts off as one cell inside his mother's womb. He is far too small to be seen. This cell takes in protein and builds another cell. This goes on until there are millions of cells which take on different shapes to make the different parts of the child's body such as his muscles, his eyes, his heart and his brain. A child has to grow very fast and, therefore, he needs lots of protein. From the beginning, the protein has to come to the child through the umbilical cord that joins him to the inside of his mother's womb. A pregnant mother thus eats plenty of protein if she is to have enough for herself and for the child that is growing inside her. If a mother has a good diet during pregnancy, she becomes heavier and puts on fat. The stored fat is important because it is used to make much of the milk when she is breast feeding.	2.1 Identify the sources of vegetable protein for those who cannot afford animal foods.
3. Mothers who do not eat enough food during pregnancy will have smaller babies. Low-birth weight babies are especially at risk of illnesses, malnutrition and death.	3.1 From your personal observations, describe among pregnant women those who are at "high risk" of malnutrition. 3.2 Identify the diseases or illnesses that affect low birth-weight babies.

4. During breast feeding, much of the mother/infant interactions and bonding takes place. It permits a closeness between a baby and the mother. The infant needs the loving and stimulating environment during breast feeding for full development. Breast feeding has been found to be a major contributor to preventing infant death and longer birth interval.

4.1 Describe a practice in your community that promotes bonding/ interaction between mother and infant during breast feeding.

5. Breast milk contains the right mixture of fats, sugars and proteins for a growing baby. Therefore, it is easy to digest. It also contains antibodies which protect the child from infection. Breast milk is always clean. It requires no special preparation and needs not to be purchased.

5.1 Give the advantages and benefits of breast feeding.

6. A mother should put her baby to her breasts on the day he is born, within 1 or 2 hours after birth. This first milk is known as colostrum. Colostrum is very good for the baby. It protects the baby from infectious diseases, such as diarrhea. The regular milk comes on the third to sixth day after birth.

6.1 Can all mothers breast feed? Interview some mothers on the difficulties or problems they may encounter in breast feeding. What are their practices to solve these problems? How sound/unsound are these practices?

7. Practically all mothers breast feed their babies, and they normally know how to do this. But certain points need to be remembered, especially when a mother had difficulty putting the baby to the breast.
   a) The mother should be comfortable.

   b) If she touches the baby's cheek with her nipple, the baby will automatically turn his head and open his mouth. The baby's chin should be pressed up against the breast. To allow the child to breathe easily, she can hold the breast away from the baby's nose with her fingers.

   c) The baby should suck from both breasts at each feeding. Feed from the right breast half of the time, then, from the left breast. Five to ten minutes from each side - longer as he gets older.

7.1 How often should the mother breast feed? How long should a baby be fed each time?

7.2 Up to what age should a child be breast fed?

FOOD FOR PREGNANT WOMAN
Ground nut
BUTTER
Butter
Pumpkin
Bread
Rice
Beans
Meat
Pineapple
Banana
Chicken
Eggs
Palm Oil
Cassava
Raw-Fish
Tomato
Mango

d) The baby can be breast fed whenever he wants. During the first few days, the baby will cry when he wants milk; mother and baby usually settle in to a rhythm.
e) Small babies need to be fed at night. If they sleep next to their mother, sometimes they feed without waking the mother.

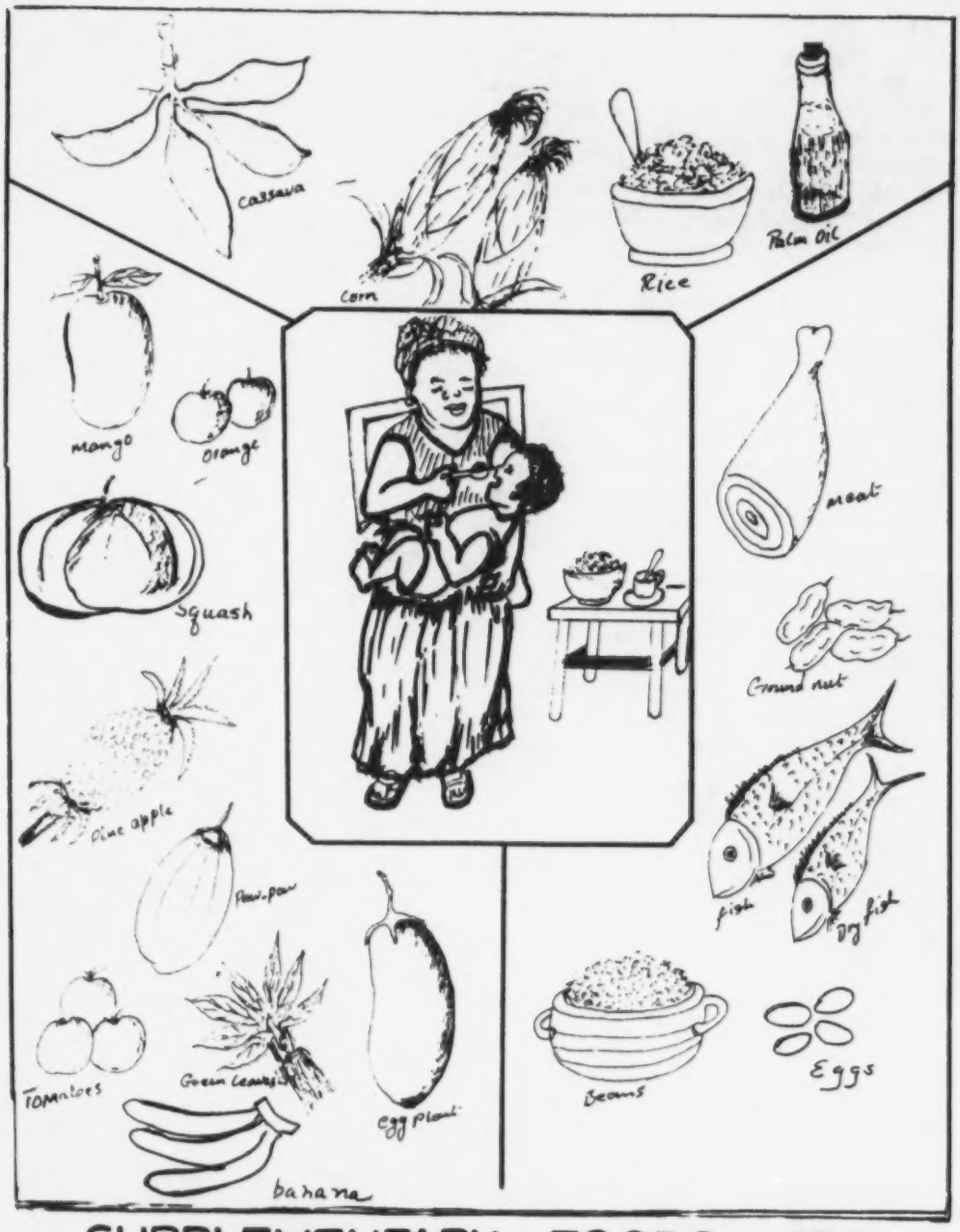
8. In the first month of his life, protein comes to him in his mother's milk, but from the age of six months onward, he must have plenty of other protein foods added to his porridge. The first foods need to be soft and without strong spicy flavour (e.g. curry). The staple diet or the cereal in the community should be used to make the first food for an infant. It should be well cooked, mashed and made into a porridge. Adding some oil will increase the energy found in the food. Sugar is also useful, but sweet foods are bad for the teeth.

8.1 What feeding practices for weanin are part of the customs an traditions of the community?

8.2 Give an example of a supplementar food for a 6-8 month old chil What nutrients are found in it How valuable or useful is it to th child?

9. When preparing the baby's food, make a porridge of local grain or soft cooked rice with fish meals, groundnut paste or mashed beans. The consistency of this porridge should be "thick like borongo" - also called "pota-pota" in other parts of Sierra Leone. Palm oil is added to the rice porridge for extra calories. Since babies have small stomachs that cannot hold the foods in one meal, the weaning foods should be fed twice over 4-5 hour periods. The goal is to provide at least 400 calories and 15 grams of protein from the porridge in addition to the 16 ozs. of breast milk in a 24 hour period.

9.1 Demonstrate with the use of loc measuring utensil the preparation a weaning food. (Use ric groundnut, beans, palm oil, fi meal. Tell how much rice, bean fish and palm oil to add. Show t thickness of the soft cooked rice.)



SUPPLEMENTARY FOODS FOR WEANING INFANTS

10. After 6 months the child can take a more varied diet. Once a child is eating cereal porridge well, cooked legumes, potatoes, mashed fruits or vegetables can be mixed into it or given separately, gradually increasing in quantity. The vegetables should be very soft without fibre, or mashed. Finely chopped fish or meat can be mixed in but not as essential when adequate amounts and mixtures of vegetables are given.

10.1 List the local fruits and vegetables that may be used to improve the variety of food given to a child about 9 months - 12 months old.

11. When there's an insufficient supply of mother's milk due to the sickness of mother or to the absence of the mother, bottle feeding becomes a necessity. Using tinned milk or powdered milk is costly and needs preparation and conservation. It provides an unbalanced diet if the formula is too dilute. Milk is easily contaminated and when the bottle or rubber teats or the spoon used are not sterilized, infection sets in. The holes of the rubber teat may either be too small, and cause the child to swallow more air, but not enough milk, or too large, that there is rapid feeding and sometimes vomiting.

11.1 Discuss what can be done to make artificial feeding less dangerous.

11.2 If there are children of one year or less in the community who are bottle fed, compare their weights with a similar group that is breast fed, and the number of illnesses in the two groups. Record this data in the bar chart/graph.

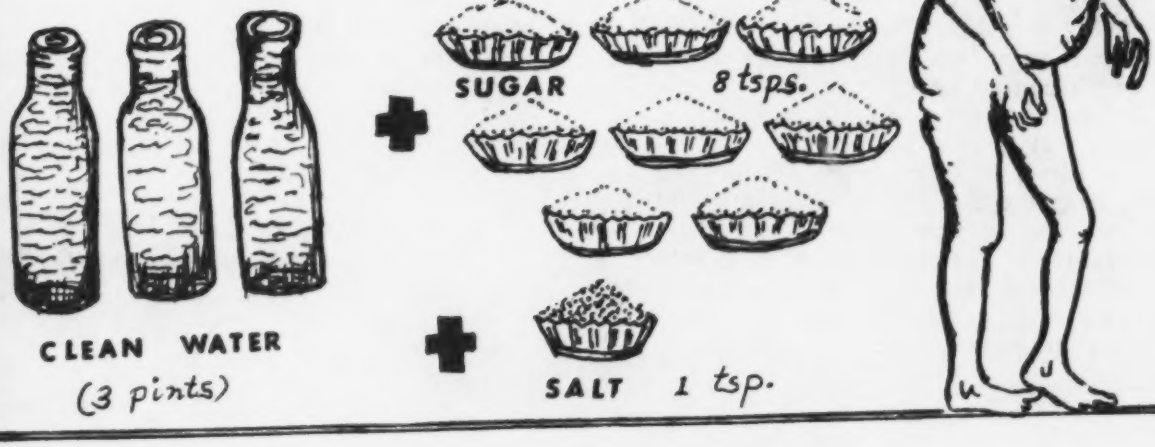
12. The nutrition of the child is endangered by diarrhea. Diarrhea is a condition in which 3 or more watery movements or stools are passed in a day. It is most common between six months and three years of age and among those less than six months old who drink animal milk or infant feeding formula. Small children with severe diarrhea lose water and salts fast and can die quickly from dehydration.

12.1 Describe the ways by which an organism causing diarrhea enters the infant's body.

12.2 State how can a mother prevent these contaminations.

12.3 With the use of a chart, describe the child who has lost much water and salt.

ORAL REHYDRATION TREATMENT



13. **The treatment of acute diarrhea calls for replacement of water and salts (rehydration). A very young child should continue to be breast fed and should take oral rehydration salts. At home, this can be made up of 1 liter of clean drinking water, with 4 grams of common salt and 40 or 50 grams of ordinary sugar. This may be given as often after a watery stool is passed.**

13.1 **Prepare a poster that shows the ingredients of an oral rehydration solutions (ORS) with the use of common measuring devices at home.**

13.2 **Demonstrate the preparation of the (ORS) using the "local" measurements.**

14. **In many communities, it is common practice to starve or restrict food when children have diarrhea. This only leads to malnutrition, which will make the child have diarrhea more frequently. To prevent children with diarrhea from becoming malnourished, it is important to give them correct treatment and proper nutrition.**

14.1 **Prepare a flip chart or a poster showing foods helpful to the child with diarrhea. Why do you think that roasted corn or boiled sweet potatoes or toasted bread taken with plenty of liquids is also curative?**

14.2 **Prepare a flip chart which shows a mother everything they need to do to care for a child with diarrhea.**

THINGS TO REMEMBER

1. *Breast feeding is the best feeding until a child is 18-24 months old, but additional foods should be given when the child reaches 6 months of age.*
2. *Never stop breast feeding during diarrhea.*
3. *Dehydration is dangerous in diarrhea.*
4. *Give rehydration fluids along with soft, easily digestible foods for an infant with diarrhea.*

V. **Community Participatory Activities**

1. Interview a few mothers in the community and find out how they feed their children and what they think about breast feeding.

2. Invite a few mothers - (6-10) for an informal discussion on what they wish to learn concerning nutrition and diarrhea, and show children's drawings on health practices.

3. Conduct a mini-workshop on the use of ORS, its preparation and the foods suitable for children with diarrhea or for weaning.

4. Ask the mothers to compose their own songs concerning the ingredients and measurements needed for ORS at home.....These same songs can be taught to children in school.

MODULE 4

NUTRITION AND GROWTH

I. Overview

Growth and development are fundamental features of children. Growth is the gradual increase in size of the body and its organs. Development is the increase in the number of skills performed by the body, including the brain and in the performance of those skills. If a child is growing well, he is probably healthy and adequately nourished. The child's development is not only influenced by nutrition but also by the learning opportunities provided in a loving and stimulating environment.

The main ideas in this module are:

1. Breast milk is suited to the growth needs of babies.
2. Measuring a child's growth is one way of measuring his health and quality of his nutrition.
3. Increase in weight with age is more important than weight on any one occasion.
4. A growth chart shows the direction of growth and the nutritional status of the child.
5. Malnutrition slows development.

II. Objectives

At the end of this training module the learner should be able to:

1. Measure growth through body weight and height.
2. State some milestones of development of the under-five.
3. Describe the nutritional needs of the child.
4. Interpret the data on a growth chart.
5. Demonstrate the use of the "shakir" strip for measuring nutritional status of the child.
6. Identify the characteristics of kwashiorkor and marasmus.

III.	Concept Development	and	Learning Activities

1. When an infant started life as one-cell in the womb of his mother, he weighed practically nothing. As the cells subdivided, forming muscles, blood vessels, bone, fat, teeth and vital organs, he will continue to grow until he is born. Forty weeks later, he will weigh between 6-1/2 to 9 lbs and his length from head to the toes should be about 19-1/2 inches. However, the size and weight of the body depends upon the stature of the parents.

1.1 Discuss the importance of pre-natal care and visits to under-five clinics for both infant and mother.

2. Normally, a mother should gain from 17 to 22 lbs. during pregnancy. To protect the infant, she should eat foods rich in protein, vitamins, iron and calcium, observe proper hygiene, get enough rest and exercise, and obtain tetanus vaccination to prevent tetanus in the newborn. On delivery, she needs protection from infection, nutrition, adequate warmth, security and comfort.

2.1 Explain why the mother needs extra foods during pregnancy.

3. Breast milk is the natural food for babies. Its composition is as follows:

Water 86.5%	Calcium 32 mg
Protein 1.3%	Phosphorus 18 mg
Carbohydrate 9.1%	

3.1 Make a list of the advantages of breast feeding.

3.2 Explain why breast fed babies have no problem with obesity.

4. A child doubles his birth weight in the first six months of his life, and triples birth weight in his first year. A healthy one year old child weighs about 10 kgs. Here are the weights of health children in kilograms:

4.1 Convert this table into pounds.

Child's age		A healthy child's weight
Months	Years	in kg.
Birth		3.5 kg
4 mo		6.3 kg
6 mo		7.5 kg
8 mo		8.4 kg
10 mo		9.3 kg
12 mo	(1 yr)	10.0 kg
18 mo	(1-1/2 yrs)	11.3 kg
24 mo	(2 yrs)	12.5 kg
36 mo	(3 yrs)	14.5 kg
48 mo	(4 yrs)	16.5 kg
60 mo	(5 yrs)	18.5 kg

4.2 **Identify one child with a known age. Take his weight and compare it with that shown in the table. If the child is under weight, which kinds of foods must he eat and how much of it should be given if he is going to grow to the right weight for his age?**

5. **Development or the increase of skills depends mainly on the brain and the nervous system, which like other parts of the body requires adequate nutrition. As the child grows, he also develops. Below are markers of development (also sometimes called "milestones of development").**

Milestones of Development	Average Baby	Nearly all babies
Able to sit without support	6 1/2 mo.	9 mo.
Able to walk 10 steps without support	12 mo.	18 mo.
Able to say single words	15 mo.	21 mo.
Able to speak short phrase	23 mo.	36 mo.

5.1 **Discuss factors other than nutrition that can also influence development.**

6. A child's weight is a valuable measure of his health and nutrition. Weighing a child requires reliable equipment and a standard method to achieve results. Beam balance is usually accurate and reliable but is often heavy and expensive. A Spring scale is only suitable for infants and small children, is quite cheap and reliable. The child is placed in a basket, or hooked through the pants of a child and suspended from the scale hanging from a branch of a tree. Bathroom scale common in the stores are convenient to carry from one place to another, but they may not be accurate.

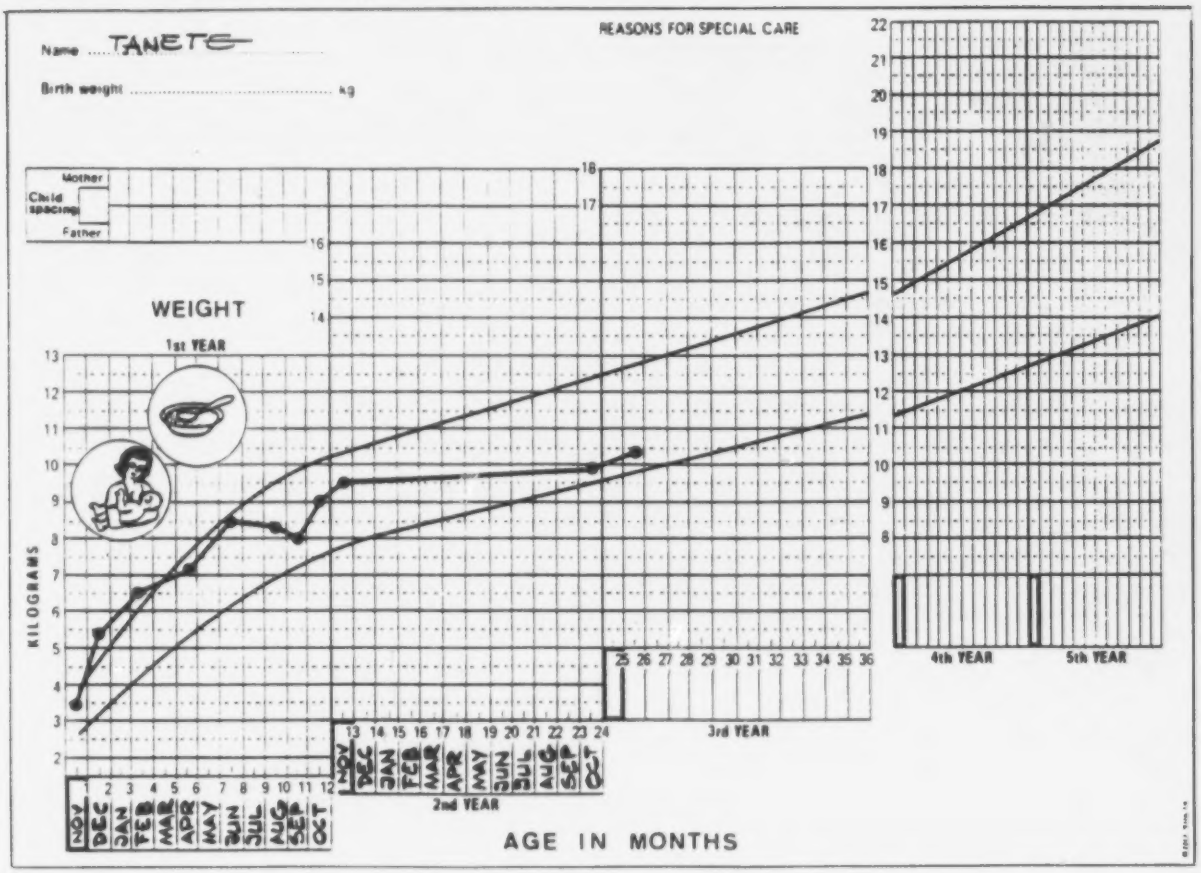
6.1 Practice reading the weight of a pile of books, a bucket or any object that can be suspended from a beam balance or from the use of any available scale. (If any trader has one, perhaps it can be borrowed to explain different types of scales).

7. A growth chart is basically a graph in which a child's weight is shown in different ages. Here is a typical growth chart. Across the graph are printed two growth reference lines. These lines give the general direction of growth in healthy children. They are not the target for the growth of all children. If a child's weight is much below these growth reference lines there is some reason for concern, but it is the direction or angle of a child's own growth line that is much more significant than any weight recorded below the lower reference line.

7.1 Identify the types of information that can be revealed in the growing chart. Up to what age is the chart suitable?

7.2 Discuss the importance of a health record for a school child. How would you devise a growth chart for the older school child?

Fig. 1 Example of a typical growth chart



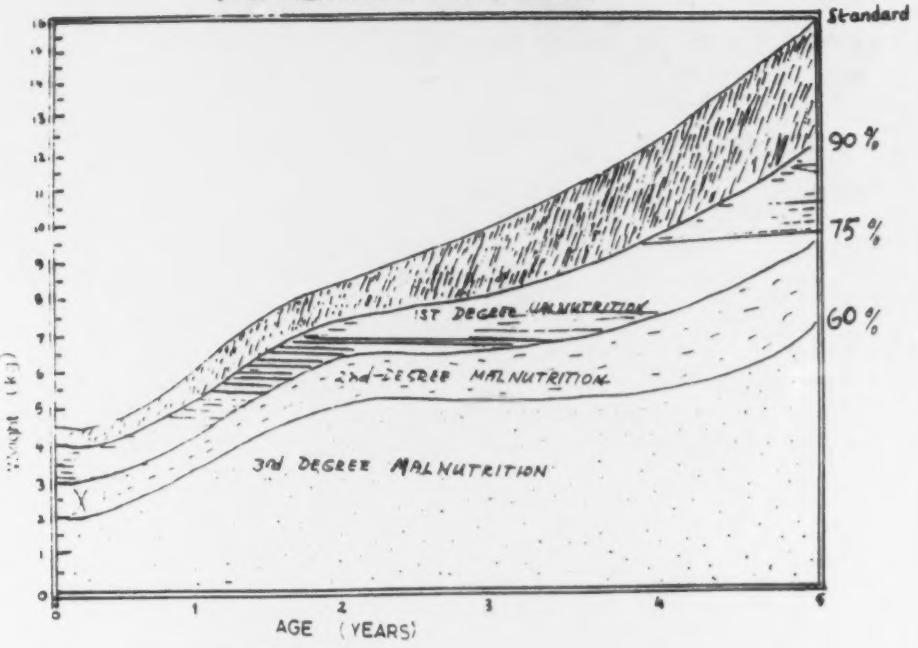
8. Methods are widely used to measure the nutritional status of a child. a) Weight for age (Gomez-type) Nutrition Classification: In this classification, the average series of children (up to five years of age) of different ages are used as standard. According to this system, if a child's weight dot at any age is between 90% and 75% line, he is considered to have degree malnutrition. If the weight dot is between 75% and 60% lines, he has second-degree malnutrition. If the weight dot is below the 60% line, he is said to have third-degree malnutrition. It must be remembered that full diagnosis of the nutritional status of the child should be made on this basis alone. b) The use of shakir strip is a quick and easy way of determining malnutrition in children more than one year old and less than five years. Where tape measure is not available, use a plastic strip or plain cloth about 20 cm. long and 2 cm wide. Mark in three places, 0, 12.5, and 13.5 cm. Color the strip red up to 12.5, yellow up to 13.5 cm., and green, from 13.5 cm to the end. Notches or scratches can be made at these points. Measure the circumference round the middle of the upper arm from the 0 point and where they meet along the strip will show: red is malnourished, yellow is probably malnourished or under nourished and if green, the child is well nourished.

8.1 Show according to the poster what percentage of the standard weight can be diagnosed as 1st degree malnutrition, 2nd degree malnutrition and 3rd degree malnutrition?

8.2 Compare a child too heavy for his age but his weight is not moving upwards, with a child who is light for his age but his growth curve is moving upwards.

8.3 Make your own Shakir strip using any material you feel suitable. Is this a suitable method for follow-up, to see if the child is improving or not? Explain.

GOMEZ–TYPE CLASSIFICATION OF MALNUTRITION



Using the shakir strip to determine malnutrition

9. Infant nutrition: A child develops protein-energy malnutrition when: a) his diet does not contain enough protein - and energy giving foods; b) the absorption of energy-giving nutrients is reduced because of illness; and c) increased need for protein and energy-giving nutrients in illness is not met. Growth failure is the earliest sign of protein-energy malnutrition or PEM.

9.1 Look at the sketch of the child with marasmus. Note the following characteristics:
- very underweight
- thin old man's face
- thin muscles and not fat
- no swelling
- hair normal
- hungry

Do you know any child that looks much like the picture?

9.2 At what age do you think PEM is most common? Why do you think bottle feeding can be a cause of marasmus?

10. There are two severe types of protein-energy malnutrition: Marasmus and Kwashiorkor. Marasmus is another word for starvation and children get marasmus because they eat too little food of any kind. Kwashiorkor is a more serious form of PEM. The most evident sign of this condition is body swelling or oedema, especially in the face, forearms, hands, legs and feet. The hair of the child with kwashiorkor becomes pale and thin, falls out, or breaks easily. The child is unhappy, and miserable. The finger leaves a depression when you press the front of the lower leg bone.

10.1 At what age do you think is kwashiorkor most common? Explain why it can happen especially to the child who has stopped breast feeding.

10.2 Discuss why infectious diseases affect nutrition. Name some diseases where a good diet is as important as medicine.

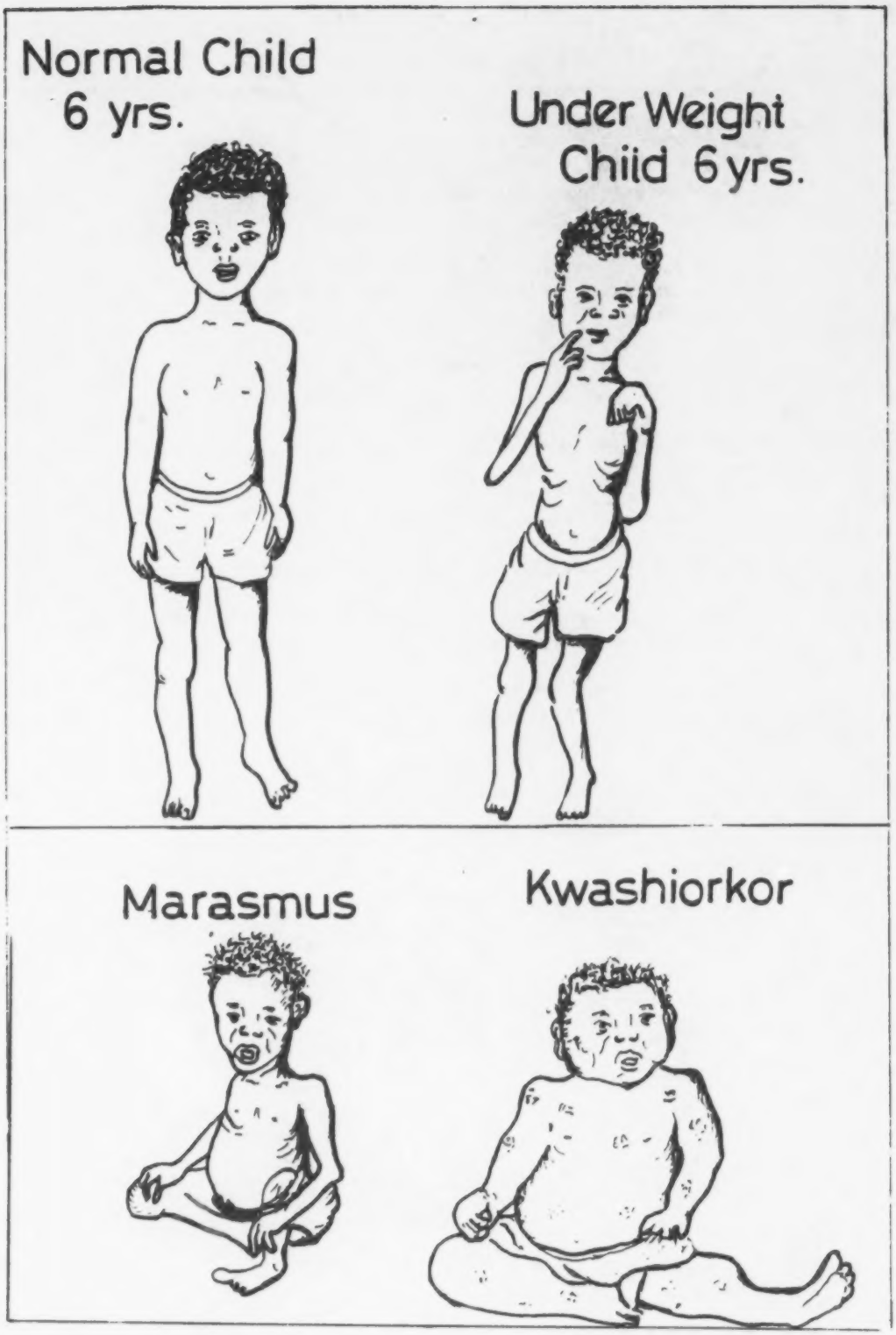
11. Growth and health differences among adults and specifically, between men and women and among the elderly, are influenced by eating right. It means not only to eat enough, but to eat a balance of the different foods the body needs. Anyone who eats well gets all the vitamins he needs. People can be strong and healthy when most of their protein comes from plants. But there are also foods or non-foods to avoid that do more harm than good: alcoholic drinks, tobacco, too much pepper or spices, greasy foods, lots of sugar and sweets, and too much coffee.

11.1 What is the advantage of cooking in iron pots?

11.2 Explain the value of practice of soaking dried maize (corn) in lime before cooking as is done in Latin America.

11.3 Discuss the ill effects of alcohol upon the individual. What are the social problems that can arise from alcoholism?

11.4 Analyze the nutritional content of the non-foods that can adversely affect our bodies.


Normal Child
6 yrs.
Under Weight
Chiid 6yrs.
Marasmus
Kwashiorkor

77

THINGS TO REMEMBER

1. *Marasmus and kwashiorkor can be prevented or treated by eating a balance of nutritious foods and by eating enough.*

2. *The direction of the growth curve is more important than the weight of the child at one given time.*

3. *Measuring a child's growth is one way of measuring his health and the quality of his nutrition.*

4. *Eating right helps the body resist illness.*

IV. Community Participation Activities

1. Teach the mothers in a workshop or demonstration class how to use the shakir strip. Following the class activities, let them bring back to class the measurement of the children under five years of age in their household. Make a chart of their findings and discuss in class their understanding of the chart.

2. Use a mother in the community (whose children might be at high risk of malnutrition) and explain what might be done to change the family diet pattern.

3. Invite the mothers to school to watch a weighing session and help fill in the health record cards of the children. Discuss the use of a growth chart for the under-fives.

4. Find out how common malnutrition is through a nutrition survey. Determine if there are other diseases related to nutrition deficiency. Discuss with the mothers if cooking habits and attitudes towards certain foods have something to do with it.

5. In mothers' workshops, especially for pregnant and lactating women, show the visuals on malnutrition and clarify values by asking what they would do if the malnourished child is their own or what they would do to prevent the conditions.

MODULE 5

LOCAL FOODS AND EATING HABITS

I. Overview

Good food habits help to promote better health and nutrition. The foods we eat are used by our bodies to Go, Grow and Glow. The availability of local foods, their accessibility and costs, as well as the income of the consumer all affect our eating patterns. Cultural practices also affect to a large degree one's access to food, just as customs and traditional ways of life including taboos can be detrimental to good nutrition. There is a need to utilize to the maximum local production, rotation of crops, preservation and conservation of food resources for improved nutrition.

The main ideas in this module are the following:

1. Better crop varieties are one of the best ways of improving nutrition.
2. Nutritive values of food are changed during cooking or consumption.
3. Preservation problems and seasonal production influence eating habits.
4. Some taboos promote malnutrition or undernutrition and harmful consequences.
5. Foods that can be stored or kept until some future use, need to be bought in large quantities.
6. Foods which cannot be stored, such as green vegetables, need to be bought daily or grown in the backyard.
7. Socio-economic factors responsible for malnutrition or undernutrition are "blocks on the food-path" to individuals.

II. Objectives

At the end of this training module, the learner should be able to:

1. Trace the food path of foods until it reaches the person or child who eats it.
2. Explain farming practices that serve as blocks to the food path.
3. List the difficulties in the food path for town children and compare this with those of the rural child.
4. Identify some of the blocks on the food path as reflected by customs and practices.
5. Discuss ways and means by which blocks to a food path can be removed or reduced.

1. Foods that come into our body comes from somewhere - from the field, gardens, rivers or farms. We think of these foods as going through a "path" until it gets into the body of the child who eats it. These paths are called food-paths and all the things that block them contribute to malnutrition or undernutrition. Food paths are longer for town children whose mothers have to buy food, than they are for village children whose mothers grow foods.

1.1 Look at the food path for the town children and list the paths for them - from harvesting, storing, etc.

2. People too sick to work in the farms are not able to work hard, or if malnourished may not want work hard and are not able to grow enough food. He does not grow enough food so he stays malnourished.

2.1 Discuss some customs and practices that can block the food path or limit the agricultural produce before harvest.
   a) clearing practices
   b) subsistence farming against surplus farming
   c) food crops against cash crops
   d) ways of farming

2.2 Make a list of local fruits and vegetables and on another column write if available all year round, January (month, etc.), accordingly. For example:

Fruits:
bananas _____ all year round
plantain _____ June to Oct.
Vegetables:
cucumber _____ all year round
tomatoes _____ January to June
beans _____
eggplant, etc. _

Based on this list, what crops are beneficial in home gardens?

3. Blocks on the food path, for example, in cooking can contribute to losses in nutritive value of foods, such as overcooking or discarding broth of vegetables. Sharing the food among too many children, or father eating more than his share of food are blocks to the child's food path. Diseases and parasites are also blocks in the consumption or use of foods.

3.1 Explain how lack of knowledge about food preparations or about which foods are right for young children, can be blocks in the food path.

3.2 Illustrate why lack of love during eating becomes a block in the food path.

3.3 Explain why the failure to add protein foods to a child's porridge is a block in the food path.

4. Transport difficulties, lack of fuel, lack of jobs, profiteering in retailing, and bad budgeting and shopping block food path.

4.1 Discuss the way people buy "prestige" foods over the advantage of less prestigious foods but more nutritional value. How does bottle feeding become a block in the food path?

4.2 Compare the eating habits of one region in Sierra Leone i.e. Freetown or Western Area with those of the North, or Kolinadugu Province. Has this practice have religious or ethnic basis?

5. Many of the blocks in the food-path are linked to one another. For example, lack of knowledge is tied to weaning or feeding practices that are blocks to the food path. Heavy rains, drought, insects and pests that destroy crops are blocks to the food path and cause malnutrition. Fathers without jobs, sickly mothers, and bad bottle-feeding can be serious blocks existing at the same time and may lead to malnutrition.

5.1 Visit one village and observe the children under five years. Pick out one child you think is inadequately fed and interview the mother on what was fed to the young child on the previous day.

Ask the following questions:

a) Do parents and children eat together?
b) Do younger children have a plate to themselves?
c) How often are they fed?
d) How far do children have to walk to school?
e) Do they have breakfast before they go?
f) Do the children get any food in the middle of the day?

Discuss your findings in the class and determine which practice is a block in the child's food path.

TABLE NO. 1 SOME BLOCKS ON THE WAY THE FOOD TRAVELS

Clearing	Planting	Growing and Harvesting
- malnourished farmers	- wrong crops planted	- no credit to buy fertilizer
- too many people, not enough land	- cash crops grown instead of food crops	- too much rain or rains too late
- fields not cleared before rains start	- lack of knowledge	- too little rain
- too many people leaving farms to work in town	- wrong varieties of crops planted	- farmers and family too sick to work in the fields
	- wrong cultivation practices that lead to soil erosion	- wives of husbands in paying jobs
		- too proud to work on land

Storing	Transporting	Wholesaling and Retailing
- lack of knowledge	- bad roads	- too large profits for wholesalers, middlemen or retailers
- pests destroy stored food crops	- no lorries to transport produce	- food bought expensively in small amounts
	- reckless drivers crash their lorries	
	- petrol shortage	

Shopping/Earning	Cooking	Sharing and Eating
- lack of knowledge of good nutrients	- lack of fuel	- father eats more than his share
- money spent on non-foods	- lack of knowledge of right food for children	- too many children to share too little food
- persuasive advertising on wrong products	- idle mothers, sick mothers not cooking food for children	- worms prevent body to use food properly
- not enough money	- wrong cooking practices	- sickness preventing child to eat
- lack of jobs or unemployment		- lack of love and warmth during meals

6. Processing of food is one of the steps in the food path that may be prior to storage between transporting and wholesaling. By processing, the food changes in some way, such as grinding maize into flour, making garrie from cassava, drying or smoking fish, or making sugar from sugar cane. Cooking some food at home for preservation and storage, i.e. preserving fruits into jams and marmalades, are not blocks, and are seldom the cause of malnutrition.

6.1 List the important sources of protein in the local market and discuss ways they are preserved for future needs.

6.2 Describe the food path of palm oil until it reaches the body of the town child. Think of ways this path can be blocked along the way.

7. Another way of promoting the food path is to have home gardens. The food path becomes shorter and with less tendency to be blocked. Budgeting the money for purchases of the right foods and spending it wisely is hardly the solution for those with so little money. Bad budgeting in wage earner without allocating enough money for food and their family needs is a block in the money path that leads to the food user.

7.1 Think of a large family composed of parents and 6 children, with short interval of about one year between these children. Discuss the blocks that are all tied together in the food path of this family, when the father becomes jobless.

7.2 Discuss some food taboos and comment if they are beneficial, harmless or harmful customs.

THINGS TO REMEMBER

1. *Some customs and taboos related to food consumption can be harmless or lead to malnutrition.*

2. *Selective farming of better crop varieties for year round produce is one of the best ways of improving nutrition.*

3. *The most serious block to the food path of the child is in the sharing and eating practices in the household.*

4. *When you see a malnourished child, look for the blocks on his food path.*

IV. Community Participation Activities

1. a) Study the food habits of a family with regard to:

    1. Number of persons to feed (indicate number below five years, between 6-12 yrs., 13-18 yrs., adults and elderly above 55 years).

    2. Number of meals per day (a meal is one prepared for all members of the family).

    3. Approximate costs of the food prepared for the day.

    4. Any illness indicative of under-nourishment and parasites, anaemia or contamination in food, i.e. diarrhea, during the week.

    b) Discuss with the mother the measures to be taken to improve nutrition or sanitation in the household or organize a health session among mothers to this effect.

2. Ask the mother or head of household if there is any food they do not eat and the reason why this is "taboo." a) Religious reasons should be respected and clarified by some exchange of views related to other religions. b) Where the reason is strictly superstition and without basis, plan with your group or classmates a visual campaign using posters on the positive aspects of the food that is negatively perceived by the household.

MODULE 6

PREPARATION AND PRESERVATION OF FOODS*

I. Overview

A knowledge of the preparation of goods and the changes in nutrition value which foods undergo during handling and cooking, the tastes of the individuals or the family implies better use of food and nutrients. The main aim of cooking foods is to make food more digestible. While physical and chemical changes take place during cooking, the texture of the food is altered, thus helping mastication. In cooking, the natural flavours of food is enhanced and a combination of foods make it more appetizing and nutritious. When the production or availability of food is only seasonal, simple methods of preservation should be employed locally and improved to be of benefit to the community.

This module is concerned with the following concepts:

1. Different methods of cooking are used for preparing different types of food at home.
2. Some cooking methods have the advantage of retaining the food nutrients, preventing food spoilage, of quick cooking and improving taste, flavour and appearance.
3. Some cooking methods have the disadvantages of being slow or cooked too long and of destroying certain nutrients in the food.
4. Improperly cooked food can cause illnesses and diseases.
5. The methods of preserving and storing foods depend upon the types of food and the condition under which it can be stored.

II. Objectives

At the end of this training module, the learner should be able to:

1. Explain the advantages and disadvantages of the following cooking methods: boiling, stewing, steaming, roasting, frying and baking.
2. Demonstrate the different methods used for preparing food at home.
3. Discuss the conditions necessary to prevent and destroy organisms which cause food decay or spoilage.
4. Demonstrate the various techniques of local food preservation by physical or chemical means.

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*This module should have practical work in the Home Economics kitchen or laboratory.

III.	Concept Development	and	Learning Activities

1. The health of the family depends largely upon the proper preparation of food. Cooking not only sterilizes food and destroys harmful bacteria and parasites, but it also improves the appearance of some food and makes it attractive to the eye. In general, foods are cooked by a) wet methods - boiling, stewing and steaming and b) dry methods - roasting, or grilling, baking and frying.

1.1 Give reasons why you should cook beef, pork, or chicken. Compare these reasons with why you would cook cassava, sweet potato or bread fruit. a) what methods of cooking are applicable to the forementioned foodstuffs?

2. Boiling foods by complete immersion in liquid is a most suitable method for making foods remain moist, of requiring little attention and when boiling is completed in a few minutes, it requires little fuel and will have vegetables retain its vivid colours. Its disadvantage is that there will be some loss of minerals, vitamins and flavour into cooking liquid.

2.1 Make a list of foods that can be eaten by ordinary boiling.

2.2 Discuss why in some cases it is better to use the "stock" in which food is boiled, and not discarded.

3. Steaming is cooking with heat coming from steam rising from boiling water. Small pieces of fresh fish or meat, root vegetables and puddings or custards may be steamed. There are two methods of steaming: 1) Food placed in a covered steamer over boiling water. A double boiler can also serve the same purpose. 2) Food placed in a covered bowl standing in a sauce pan with boiling water up to half the level of the covered bowl. Steamed food remains moist, and looses less weight than food cooked by other methods. Steamed food is easily digestible and retains most of the nutrients. It requires less attention. If using a tiered steamer, a complete meal may be cooked, thus saving cooker space and fuel.

3.1 Demonstrate the use of a steamer in preparing green leafy vegetables. What advantages do you see? Why is steaming a kind of "dry" cooking?

4. Cooking by stewing is long, slow process, with the use of a tightly covered pot and in a small amount of liquid. A gentle heat after the initial boiling, or stewing in a covered casserole in a moderately heated oven will save fuel, if the oven is also used for baking another dish.

   A major advantage of stewing is that a satisfying meal may be cooked in one vessel, thus saving fuel, cooking space, attention and washing up.

4.1 Show the difference between stewing and boiling. What types of meat or vegetables are economical for stewing?

5. Baking is an expensive way of cooking, requiring oven space and more fuel. Baking in a closed, unventilated oven results in foods which have attractive appearance and flavour. A home made oven can be made with a pot with a flat cover, so that wood charcoal can be placed on top as well as under the pot. In many villages, home made bread baked in a pot are sold to neighbors.

5.1 List the ways oven cooking may be utilized in preparing different foods.

5.2 Demonstrate the set up of a home-made or improvised oven. How can this pot be utilized for "water-bath" cooking or steaming?

6. Cooking under or over radiant heat is known as grilling. It may also be called roasting when done in an open hearth - such as roasting a piglet or a shank of beef. Grilling is a quick and appetizing method of cooking small pieces of good quality foods, as steak, loin chops or freshly caught fish. Little preparation is required and there is little loss of food value. To enhance the flavour of grilled meat, they are first marinaded in lemon, vinegar or oil, sugar and other spices.

6.1 Collect some examples of marinades that are used for meats. What vegetables can also be roasted?

7. Frying utilizes oil in cooking. It may be done by shallow frying with little oil, as egg, pancakes or fritters. In deep frying, the food is completely immersed in oil and must be of the right heat. Sausage and bacon with high fat content can be dry fried. Occasionally remove the fat as you continue frying. Coating foods with batter protects the food from high temperature while frying.

7.1 State some guidelines for deep frying.

8. It is good practice to preserve foods for a later use, especially when there is a surplus of crops, or to prevent spoilage of local foods without refrigeration. Imported foods are either canned or bottled and they use chemicals as preservatives.

8.1 Make a list of preserved foods in the market or at home and tell how they were preserved.

8.2 Look at the labels of imported foodstuffs and identify what preservatives are used.

Domestic food storage without chemicals can easily be used, more cheaply and safely. Some of these are:

- regular sunning of the crops (cereals, grain legumes)
- smoking, which keeps out weevils
- addition of certain natural compounds to the crops in storage e.g., a) hot chile peppers which make it uncomfortable for the pests, b) orange peel - the oil in the peel contains a potent insecticide and it is absolutely safe. The peel can be ground, dried and powdered.
- charcoal coolers for preserving butter
- steel drums or plastic buckets, as water filters, packed in layers with appropriate and available materials.

9. For food to maintain its maximum nutritive value and palatability, it must be preserved when fresh and at its most nutritious stage. It may be dangerous to preserve food which has already deteriorated and decayed. During sun drying, salting or smoking we must insure that flies and insects do not contaminate the food. When preserving foods it is essential to destroy various spoilage agents like bacteria and prevent or render inactive decomposing elements in the air. Good processing and storage of animal foods depend on clean hands, clean clothes and no fly contamination.

9.1 Go to the market and observe which preserved fish may not have been fresh when preserved. Describe the difference in salted fish or smoked fish among those preserved when fresh or not fresh.

Have you experienced the presence of maggots in some preserved fish or dried meat? Why is this so?

10. Personal hygiene, food hygiene and kitchen hygiene must be observed in food preparation and service in order to avoid introduction of harmful bacteria into our meals. Diseases like dysentery, lassa fever, hepatitis, diptheria, trichinosis, botulism and salmonellosis are all contracted from poor storage, improper methods of preservation and cooking, use of unsafe water and contaminated meat.

10.1 Explain how lassa fever is transmitted by its carrier. Show pictures of the types of rats that are carriers of the disease.

10.2 Make a table with a list of food contaminants and in the opposite column, indicate the preventive measure to keep the food safe.

10.3 Trace the transmission cycle of parasites in food, i.e., tapeworm, trichinosis, etc.

THINGS TO REMEMBER

1. *Different cooking methods have advantages and disadvantages.*

2. *Improper storage of raw and cooked local foods bring about economic waste and health problems.*

3. *Effective preservation methods prevent existence of micro-organisms which cause spoilage.*

IV. Community Participation Activities

1. Interview the women in the community about their storage and preservation problems.

   Discuss

   a) relationship of food hygiene - sanitation - disease
   b) storing surplus produce through sun drying
   c) steaming to retain more nutrients in foods, i.e., vegetables.

2. Demonstrate to the villagers an updated method of smoking fish to preserve the catch.

MODULE 7

IMPROVED NUTRITION THROUGH HOME GARDENS

I. Overview

The main ideas in this module are the following:

1. Successful home gardens depend upon cultural practices for growing specific crops.
2. Home gardens with a variety of crops serve basic dietary needs and economic objectives.
3. Home gardens must be planned according to the social, economic and climatic environment.

II. Objectives

At the end of this training module, the learner should be able to:

1. Discuss the uses and importance of home gardens.
2. Identify the different types of crops that can be grown in a "mixed home garden."
3. Name the nutrients that can be derived from the produce of the home garden.
4. Plan and design a home garden.
5. Discuss how garden products can be stored and preserved.
6. Recognize the problems of home gardens in the area as basis for problem solving.

III.	Concept Development	and	Learning Activities

1. Home gardens represent the most viable method whereby a rural family can hope to meet its daily nutritional needs. As a self-sustaining system composed of annuals and perennials plus small domesticated livestock as chickens and ducks, it can also be referred to as mixed gardens. In the past, home gardens tended to stress vegetables as the main component of the system. While they have the potential to yield the best results in the shortest period of time, their usefulness is limited since they cannot form the basis of a permanent, self-generating, self-contained eco-system.

1.1 Look at a backyard home garden in your area and identify all the plants that are grown within the vicinity, and classify them as trees, shrubs, or replantable.

1.2 Interview the head of the household and find out how the choice of plants were made. Along with the findings of the other learners, determine the mode or majority response. Possible answers would be: family preference, income, climate, nutritional value, frequent needs, or other.

2. Home gardens are much more than a place for raising food. The trees provide shade, a windbreak and fire wood. The gardens also supply building materials, fibre, cooking oil, spices and cond'ments, household utensils, material for making mats, baskets, etc. Livestock are excellent sources of dietary nutrients and also fertilizer. Medicinal herbs are crucial to health of rural families who may not be able to afford or obtain reliable drugs. The gardens also offer protection and privacy, and in most cases serve to demarcate boundaries. Surplus produce can be sold for additional income.

2.1 Distinguish the mixed home garden from the garden intended for commercial use.

2.2 Make a list of herbs and plants that serve as home remedies for body ailments.

3. A typical garden might resemble a tropical forest. Dominating the first canopy level, there are coconut or palm oil trees giving only light shade, and rising beneath them or close by are a canopy of various fruit trees as bananas, papayas, lime and oranges. Bamboo is there also. Some ferns may grow on the trunks of the fruit trees. The ground level is reserved for low and trailing plants as sweet potatoes, cocoyam and herbs. Climbing vines such as yam and chuchu may also be found along with other ornamentals. A mixed garden such as this, uses fruit trees as its basic skeleton - and companion planting of vegetables provides a continuous source of nutritious food, while plants and flowers attract the bees for making honey and for pollination.

3.1 From the list of crops that were identified, state the nutrients found in them. Discuss if the crops grown meet the dietary needs of the family.

3.2 Determine which ferns are edible.

3.3 Describe some of the usefulness of other plants besides being dietary sources.

4. Livestock are an important component of the home garden. They provide food and valuable organic waste matter for fertilizer and they often feed off the excess and unusable plant refuse of the household, such as rice hulls, corn stalk leaves and weeds. Ducks, rabbits, pigs and chickens scavenge for food and yet, they provide quality meat. Fish ponds can also serve as pest managers because fish often eat harmful as well as beneficial crawling insects. Some herbs in the home gardens act as natural insect or pest repellant. Because the gardens do not contain a high concentration for any one species, a major pest build up is unlikely.

4.1 In your area, which animals are the most desirable to raise? Describe some guidelines for production.

5. Produce that is harvested from the garden just before meal preparation retains nearly all its nutrients, unlike produce that is bought at the market and may have travelled some distance. The mixed home garden can counteract the inadequate supply of quantity and quality foods brought on by transport or distribution and marketing problems. It can help safeguard the health of the family and ensure a varied and high quality diet for all.

5.1 Interview one head of household that has used the home garden extensively and invite him or her to come to the class to talk of the benefits derived from the home garden, including his gardening practices, and roles of the family members in home gardening.

6. Below is a basic food guide for adults using crops from the home garden:

6.1 Identify the food crops from the home garden that would meet the daily nutritional requirements of the adult.

Protective foods

a) One or more serving of green leafy vegetables and yellow vegetables daily: one cup raw and half a cup cooked.
b) One or more servings of fruits rich in vitamin C.

Energy foods

Three or more servings daily: One cup mashed or one medium sized root crop, a cup of rice or garrie.

Protein foods

Three or more servings daily from:*

a) legumes, half a cup cooked, or
b) one quarter cup of cooked fish, chicken or meat
c) nuts, quarter of a cup roasted

* Eggs (1-2) may be eaten a few times a week.

7. In a school community programme to introduce and establish home gardens, it is important to identify existing resources and to locate at least one home gardener for potential as a demonstration or model garden. Questions about motivation, household needs, pupils' perceptions about gardening and the availability of community resources must be addressed during community development council meetings. Such problems as lack of space, lack of planting materials, lack of water, insects and disease, stray animals, lack of time, theft and others must be considered so that possible solutions can be developed.

7.1 Visit the school farm or any home garden in the community and describe its strongest characteristics in terms of its nutritional goals, and identify what you feel as its least desirable characteristic.

8. Before establishing a home garden, certain conditions need to be considered:

   a) availability of water, especially during dry season
   b) availability of space and tools
   c) the nature and condition of the soil
   d) the topography of the land
   e) the common insects, pests and diseases in the environment
   f) marketability of the surplus produce
   g) variety of plants for nutritional value

8.1 Discuss with a home-gardener some of his problems and describe his problem-solving activities.

8.2 Describe where or who are the major sources of the gardeners' plant materials.

9. Pa Bagolay has a farm at Boama village in Kimmi lands. In his backyard farm of about 600 square meters he grows cassava (cassada), garden eggs (kobokobo), bitter balls (yakato), okra, beans, pineapple, water spinach, krain krain, sweet potato, coconut, oranges, mangoes, tomatoes, and onions. He can harvest his crops throughout the different seasons of the year, and even sells his crops.

9.1 Make a table with the name of crops, and classified as follows, the approximate number of plants to raise, and the planting season within a 500 sq. m. plot that would feed three adults per year.

For example:

Crop	Planting Season	No. of Plants
Fruit/Vegetable (okra, etc.)	A	24
Roots and tubers	-	24
Legumes	-	-
Leafy vegetables (and so on)	-	-

(Planting Season: A, anytime, D, beginning of dry season; W, beginning of the wet season.)

9.2 Which of these crops above are sown directly on the field and which are nursed in seed beds and later transplanted?

10. Companion planting of crops that complement each other is the foundation of a mixed garden. This system uses every inch of available space for crop production. It is intensively cropped vertically as well as horizontally. To produce continuously, it rarely depends upon outside resources once it has been established, regenerating itself in order to survive. There should be:
   a) multi-story tree crops: top layer, middle layer, lower level, edible vines, lowest level
   b) climbing legumes on stakes or untrimmed bamboo sticks
   c) planting in a circle
   d) water canal from kitchen/and or water pumps
   e) trellis over an irrigation canal or drainage
   f) trellis over livestock pen for pigs and/or chickens

10.1 Identify a group of crops that can be grown according to the list of combinations within a home garden.

10.2 Make a list of fruit trees that have a maturity of three years, and five years

10.3 What fruit intercrops with shorter maturity can be grown in a home garden?

g) climbing vines on a palm-leaf house with or without trellis
h) mushrooms growing inside a hill of bananas

11. Fruits and vegetables have distinctly different stages of maturity, and this fact must be considered before harvesting. Some fruits and vegetables will continue to ripen after harvesting; others stop once they are picked. Some leafy vegetables and fruits can be harvested continually. Generally, as a fruit or vegetable matures, the vitamin C content decreases; however, there is a corresponding increase in vitamin A.

11.1 Make a list of fruits and vegetables which continue to ripen after harvesting.

11.2 Make a list of crops which should not be harvested before they reach maturity.

12. In general, it is best to harvest leaf vegetables, fruits vegetables and tree fruits in the early morning and root crops in the later afternoon. However, the best course is to pick the plant just before the meal. This will help increase vitamin retention and thus aid the family's nutrition. Remember that:

a) Fat-soluble plant vitamins A found in green leafy vegetables are lost during frying.
b) Water-soluble vitamins (B complex and C) found in green leafy vegetables are reduced during prolonged water soaking, boiling and oxidation, early preparation and long periods before cooking or serving.
c) Vegetables should be cooked for just a few minutes and served with the cooking water to retain nutrients.

12.1 Comment on the cooking practices in your household and describe how nutrient losses or retention takes place.

13. For the successful production of crops, the gardener should be prepared to carry out particular cultural practices required for specific group cultivation, such as:

a) mulching
b) watering
c) staking
d) weeding
e) nursing
f) transplanting
g) harvesting
h) topping
i) pruning
j) shading
k) manure application
l) digging/cultivation
m) pest and disease control

14. When not all the garden products are consumed or sold immediately after harvest, storage and preservation of fruits and vegetables need to be undertaken:

a) Home preservation - root crops, wax gourds and pumpkins can be stored on a shelf for three months. Legumes can be stored for longer periods of time.

b) Dehydration of root crops and fruits: crops high in starch-sweet potatoes, yams, cassava, taro and arrowroot (ginger) are easily processed. Some fruits like mango, pineapple and the cooking variety of banana, when sliced and placed in trays to dry in the sun for 3 days can be sealed and stored up to six months.

13.1 Visit the school farm or a home garden and

a) identify the crops and the cultural managements practices that are used.
b) discuss the ways by which cultivation can be improved.
c) list the different types of tools used for gardening.
d) describe the means by which seeds can be stored.
e) show that an insect repellant can be made from soap, kerosene and water.

14.1 Demonstrate how a dried produce, i.e., sweet potato or cassava is dried, and ground into a powder and stored for future use.

14.2 Compare the sun drying of root crops with the ways fruits are dried.

14.3 Prepare boiled pickling solution and bottle separately green cucumber, shredded green papaya or green tomatoes, for at least 48 hours. Let some mothers sample and get their reaction. Let them suggest how to improve the taste, i.e. adding pepper or garlic, or make attractive, i.e. mixing grated carrots with the papaya for color, or strips of green pepper. When is it necessary to pickle freshly harvested vegetables?

THINGS TO REMEMBER

1. *Mixed home gardens have nutritional, economic and other benefits.*

2. *Mixed home gardens provide crops for harvest throughout the year.*

3. *Companion planting increases crop production efficiency.*

4. *Labor requirements are minimal and do not interfere with major income activity.*

IV. Community Participation Activities

1. Through the CDC and PTA, organize meetings to introduce and establish home gardens a) citing its nutritional benefits and potential economic advantages, b) identifying areas for possible cultivation and c) clarifying the role of the schools as nursery and source of technology. Plan a model for a mixed garden.

2. In Mothers' workshops, illustrate how nutritional needs are met in home gardens.

3. Where home gardens are not possible because of the tightly clustered houses, consider a community plot, under the auspices of the C.D.C. - and identify roles and responsibilities for care and maintenance of assigned areas.

4. Demonstrate the use of old baskets lined with perforated plastic for growing vegetables or vines in the veranda.

5. Establish with CDC a community nursery.

MODULE 8

WATER, HEALTH AND SANITATION

I. Overview

Clean, pure water is essential to human life. It is possible to live longer without food than without water. In fact, over half of the body, (60%) is made up of water. Water in the community is collected from natural sources, such as springs, rivers, swamps or stored rain water. It can also be obtained from wells dug to tap the ground water. Healthy families make water safe to drink, use enough water for personal hygiene and prevent contamination of foods and water through the use of latrines.

This module is concerned with the following ideas:

1. Water sources must be made safe to drink.
2. Water-borne diseases are transmitted by use of contaminated water.
3. Water-washed diseases are spread when people do not use enough water for personal cleanliness.
4. Water-site related diseases are those spread by organisms that breed in or near the water.
5. Water is a healing agent.
6. Environmental sanitation prevents diseases that are water-related.

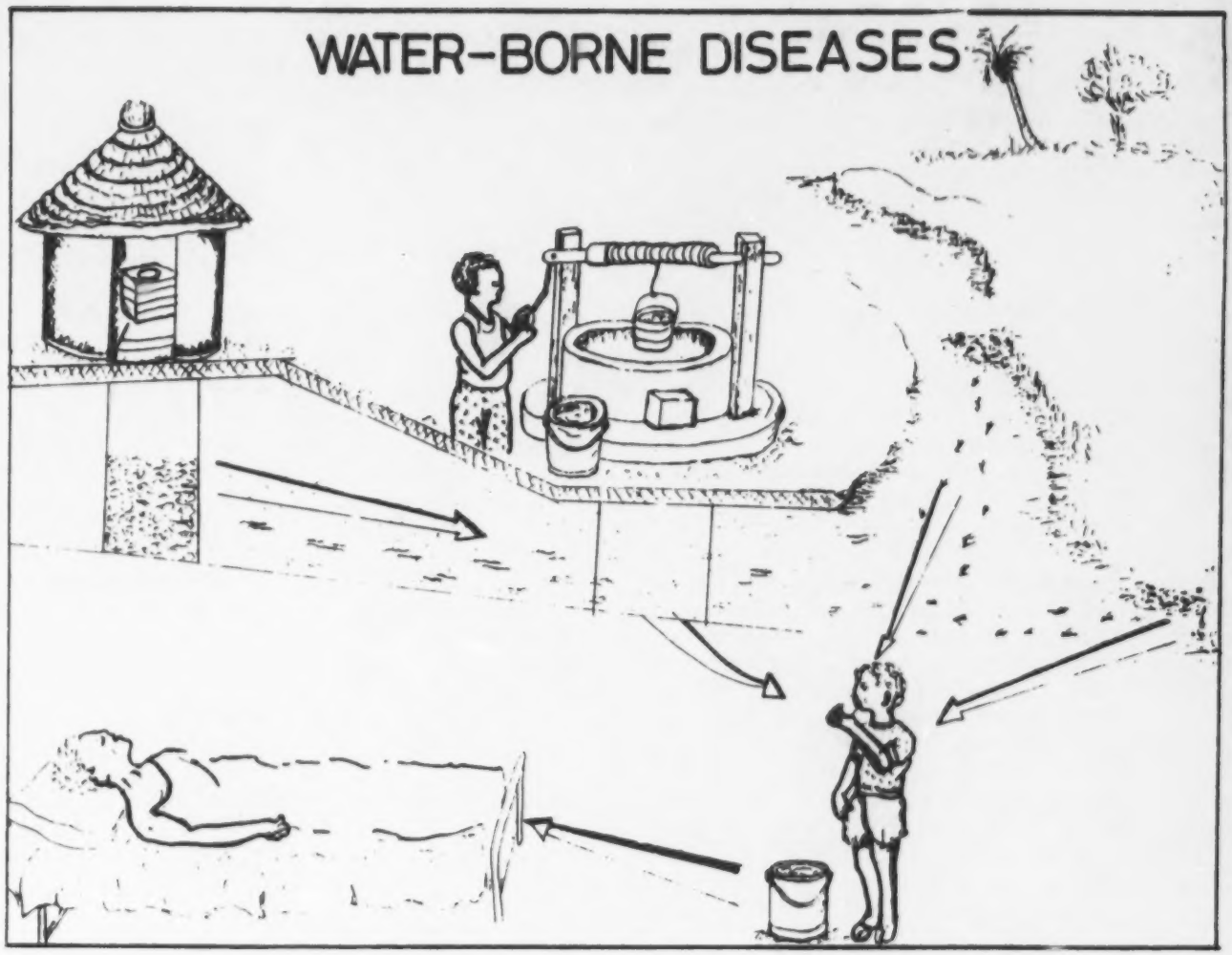
II. Objectives

By the end of this training module the learner should be able to:

1. Describe the ways in which sources of water are contaminated.
2. Trace the route of transmission for water-borne diseases.
3. Identify diseases that are spread by poor sanitation and lack of personal hygiene.
4. Identify some water-site related diseases and show how they are transmitted.
5. Illustrate the ways by which the transmission cycle of water-related diseases can be broken.
6. Describe the processes of making water safe for drinking.
7. Demonstrate the use of water for diarrhea.
8. Show how water can be used for healing.

III.	Concept Development	and	Learning Activities

1. Water goes around in a cycle (circle). It falls as rain or hail or snow. Some of this rain/snow/hail will run off this land into rivers, streams, swamps, lakes and some will eventually reach the sea. Some of the water will sink into the ground, into an aquifer. An aquifer is an underground area where water collects. (It is also called ground water). When the wind or the sun dries the water from the ponds, swamps, or wet clothes, the water changes into vapor and goes into the air. It collects into the air and clouds. In the clouds, the vapour changes back into liquid and falls as rain.	1.1 Explain where the rain that falls from the sky comes from. 1.2 Make a sketch to illustrate the cycle.
2. Surface water is often used for drinking because it is easy for people and animals to obtain. It is also easy for people and animals to contaminate them. Unless great care is given to prevent water from contamination, it may be a source of disease.	2.1 Identify the natural water source in the community. 2.2 Based on your experience, describe how people use this water source. 2.3 Estimate the distance of this source from the woman's village or compound. How much time is used to collect this water?
3. Many diseases and infections in the community are caused by unclean water and/or poor sanitation. Water-borne diseases are transmitted through the faecal-oral route. This means that diseases are spread when the feaces of a sick person contaminates water. The feaces from the person with a stomach illness contains germs (micro-organisms) which can make other people sick from the use of the contaminated water. Diseases which may be transmitted into this way are: Cholera, diarrhea, typhoid, anaemia, dysentry, polio, and hepatitis A.	3.1 Describe the several ways that faeces (excreta) can get into the water source. 3.2 Explain why a mother caring for a child with diarrhea needs to wash her hands before preparing food for the family. 3.3 Trace the manner in which flies can spread diseases through the faeces oral route.


WATER-BORNE DISEASES

4. Diseases can also be spread from a latrine too close to a water source, be it a well or a spring, or stream or pond which enable micro-organisms to seep into the liquids from the latrine and into the water supply.

4.1 Go through the area surrounding your house and explain how the water supply is kept safe from contamination.

4.2 In what way can well water be polluted by people using the well?

4.3 Show that vegetables growing near a latrine can be a source of infection.

5. Some diseases are caused when people do not use enough water to:

   a) Bathe frequently.
   b) Wash hands before meals and after defecation.
   c) Wash clothes and household utensils.
   d) Wash fruits and vegetables before eating.

5.1 Explain the two ways in which water-washed diseases are transmitted.

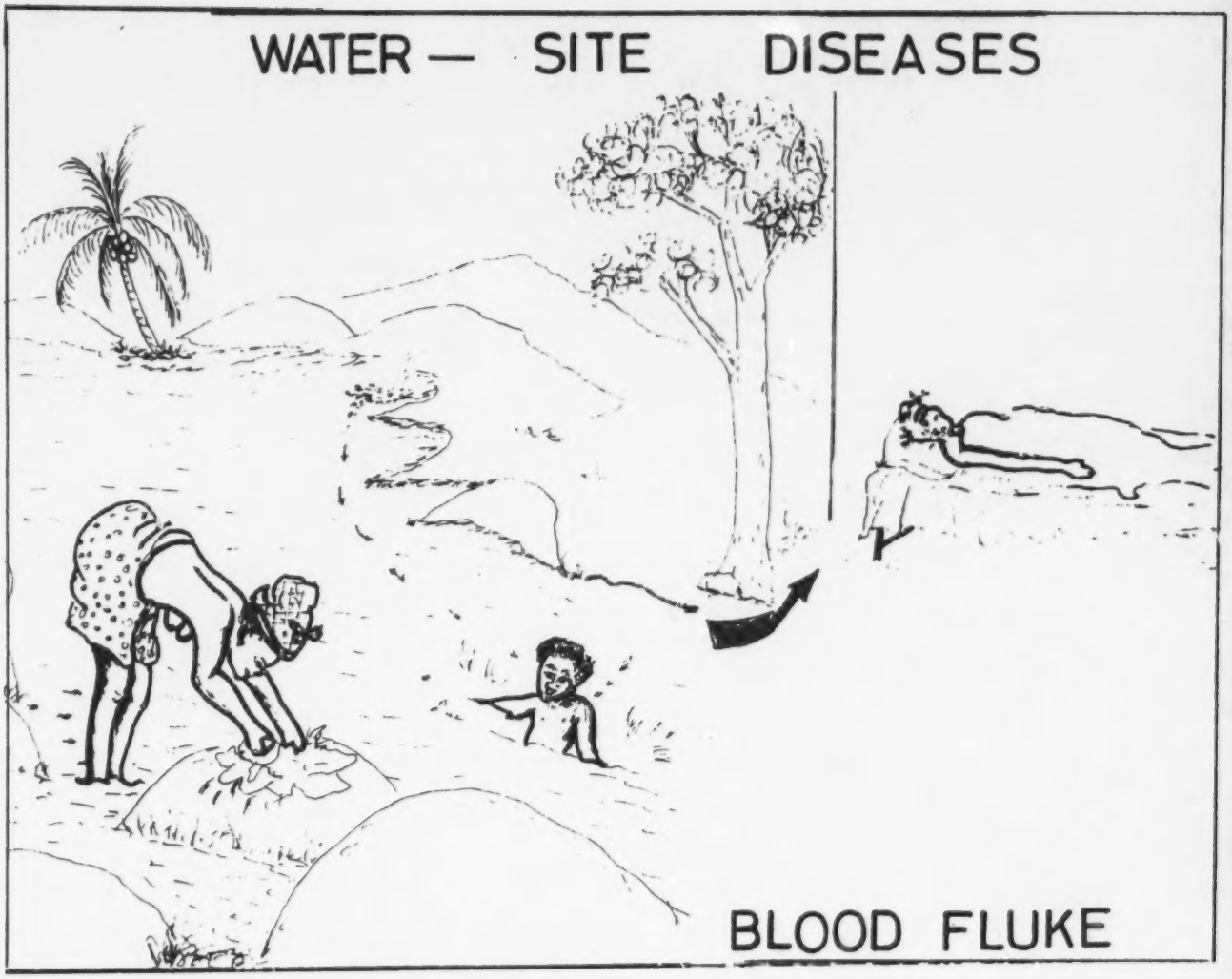
5.2 Identify the water-washed diseases.

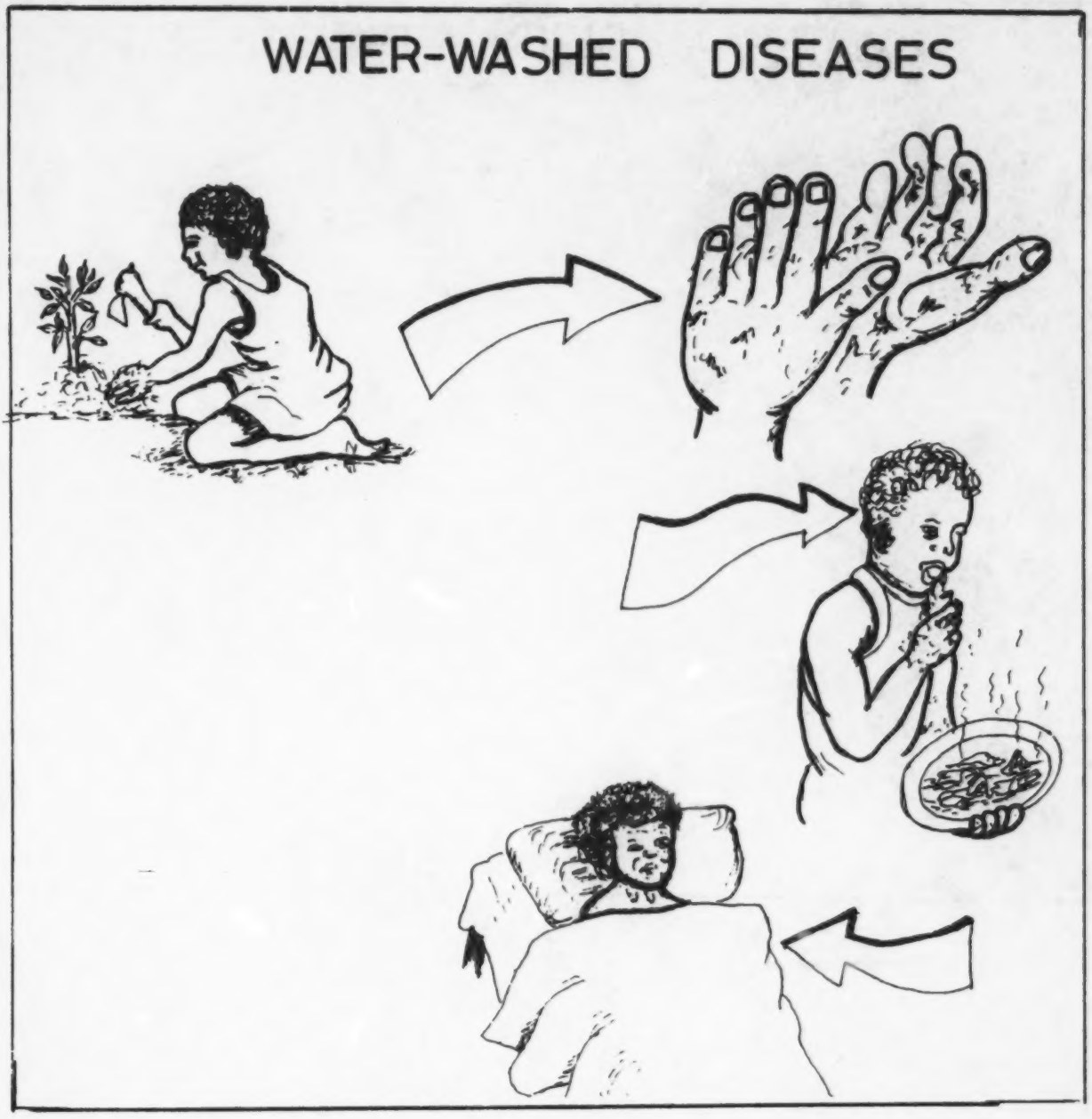
5.3 List rules of personal hygiene that contribute to good health.

6. Water-site related diseases are those which are spread by organisms that breed in or near water. Transmission occurs when an insect becomes infected from biting an infected person. Examples of diseases spread this way are: Malaria, yellow fever, dengue fever and river blindness. People coming to get water at a site where mosquito or flies breed, can get these diseases from the bites of infected insects.

6.1 Explain why skin infections and sources are common during the dry season.

6.2 Show that diarrhoea can be common in both wet and dry seasons.


WATER — SITE DISEASES
BLOOD FLUKE


WATER-WASHED DISEASES

7. Schistosomiasis is a parasite that needs a snail in a rice paddy or ditch to complete its life cycle. A person with schistosomiasis urinates or defecates into a water source, a muddy seed bed or watery ditch. The eggs that are found in the urine or excreta are released into the water and as larvae, gets into snails. The young worms leave the snails and go into the tissue or skin of another person. In this way, someone who wades in this rice paddy or washes and swims in the water where an infected person has urinated, also becomes infected. Another name for this infection common in Africa, Middle East and parts of Latin America and Asia is bilharzia.

7.1 Make a sketch to illustrate the cycle of transmission of the blood fluke. How does one prevent schistosomiasis?

8. To help the body fight off or overcome a sickness, individuals need to keep clean, eat well and get plenty of rest. Where medicine may be needed it is still the body that must overcome the disease. Giving lots of liquids to a child with diarrhea is more important than any medicine. Dehydration can take place a few hours after a severe diarrhea and often be prevented or corrected by drinking a rehydration drink.

8.1 List rules of communal hygiene that contribute to good health.

8.2 Demonstrate the preparation of oral rehydration solution. List the ingredients and its proportions.

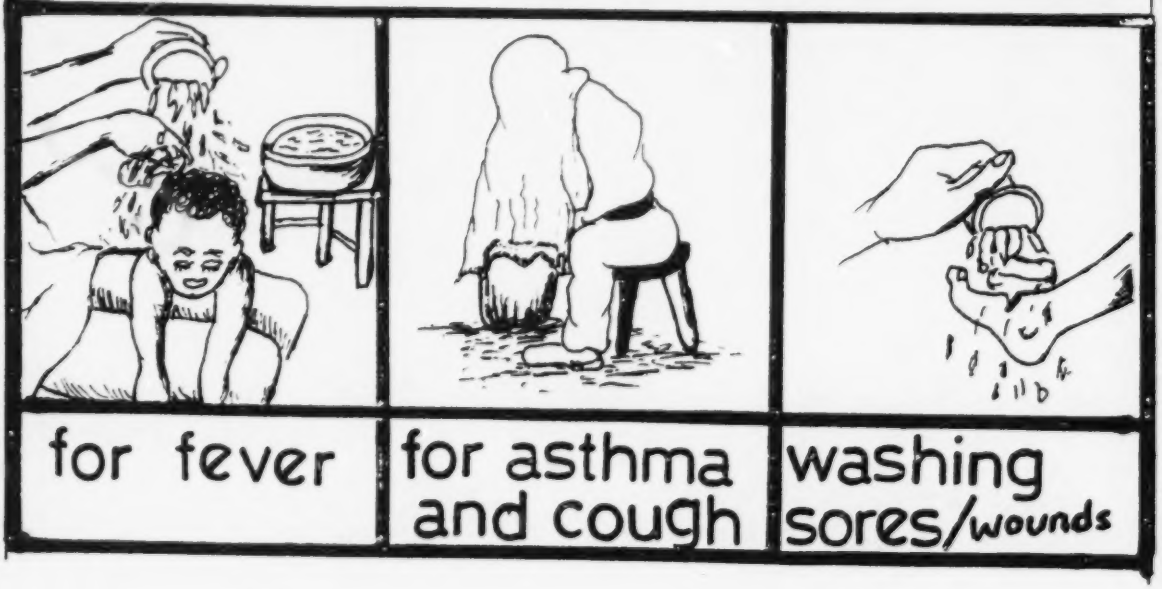
9. Below are a few examples to show that when water is used correctly, often, medicines are not needed:

9.1 Refer to p. 47, of David Werner, Where There is No Doctor and make your own visuals to illustrate the messages.

9.2 Give additional ways to use water for healing.

HEALING WITH WATER

warm water with salt | for sore throat | gargle



for fever | for asthma and cough | washing sores/wounds

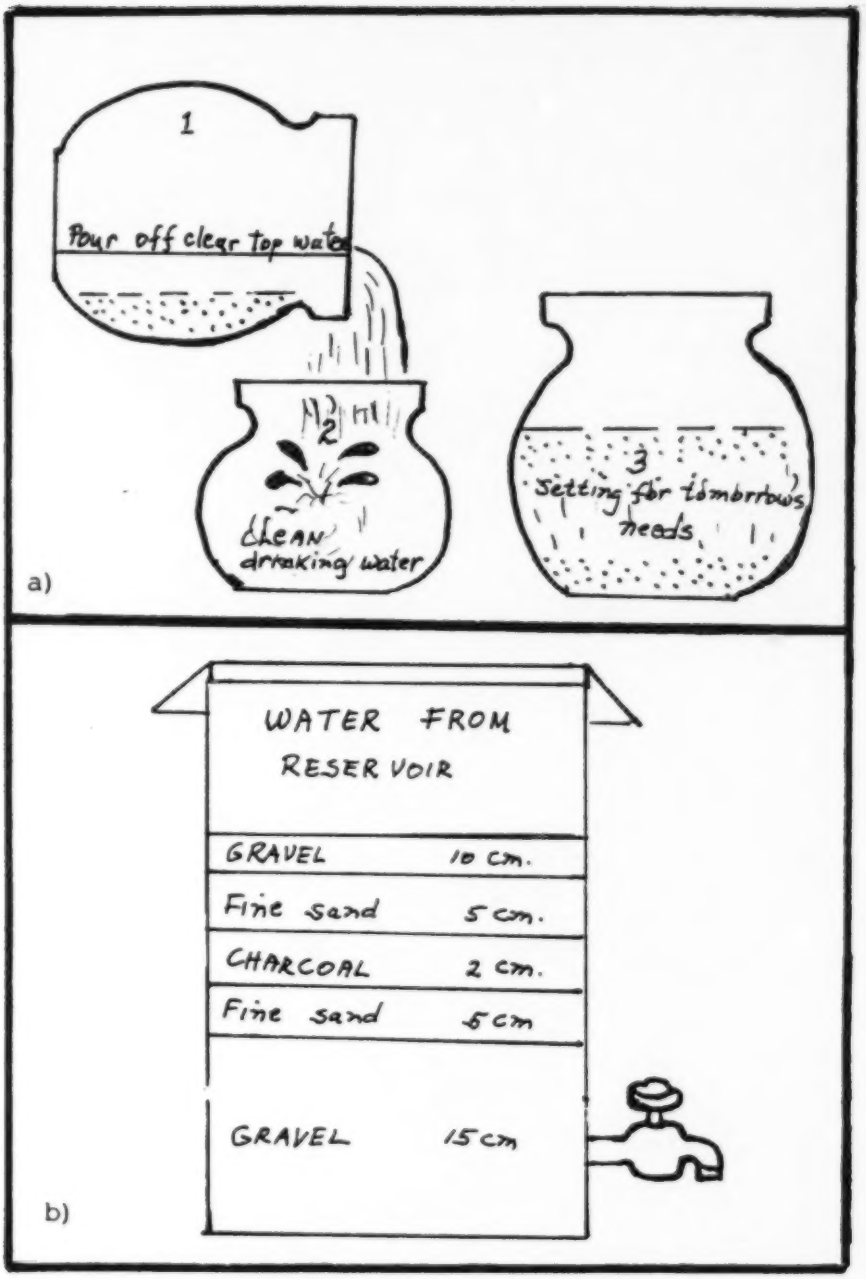
Use of Water	Purpose
a) Boil drinking water, wash hands	- to prevent diarrhea, worms, guts infections
b) Bathe often	- to prevent skin infections
c) Wash wounds well with soap and water	- to prevent infected wounds and tetanus
d) Drink plenty of liquids	- to treat diarrhea, dehydration, minor urinary infections, illnesses with fever
e) Soak body with cold water	- to treat high fever
f) Drink a lot of water and breathe hot water vapours	- for cough and asthma
g) Scrub with soap and water	- to treat sores, impetigo, ring worm, cradle cap
h) Use hot soaks or compresses	- for infected wounds
i) Hold in cold water	- burns
j) Gargle hot water with some salt	- for sore throat, tendergums
k) Use cold compresses	- for itching, burning, weeping irritations of the skin

10. Water can be made safe for human use by the following ways: a) Boiling for 5-7 minutes b) Use of chemicals (sterilization) by adding two drops of chlorine or iodine to purify 1 litre of water and c) Storage by the 3-pot system. If water is allowed to stand, many of the micro-organisms which are in it will die because they cannot live in water for a long time d) Filtration, combines the storage system - by letting the drinking water go through a filtration unit, then cover and let it stand for 24 hours before it is used.

10.1 Illustrate a home filtration unit. (Use a poster showing its components.)

11. In the storage - 3 pot system, two big pots are used for collecting water on alternate days. The first pot is allowed to stand for 24 hours. Then the clear top water is carefully poured into another smaller pot for drinking and remaining water used for washing. When the first pot is empty it is cleaned and refilled and allowed to stand for 24 hours, again while the second big pot is used in the same way as the first. In this way, each day's water has been standing for 24 hours before it is used.

11.1 Demonstrate the use of 3 pot water storage system. (See poster, same as above.)



a) Three (3) pot storage system

b) Home filtration unit

THINGS TO REMEMBER

1. *The main cause of water-washed disease is a lack of water.*

2. *The main cause of water-borne disease is dirty water.*

3. *Insects and parasites transmit water-site disease.*

4. *Personal hygiene concerns cleanliness of the body, of your food and your water.*

5. *Correct use of water prevents and cures some illnesses.*

IV. Community Participation Activities

1. Make a survey of the common illnesses in your community. Classify it as either water-borne, water washed or water-site related diseases. With the CDC, conduct a health session to identify the possible sources, or causes.

2. Invite the village elders to a) discuss the importance of latrines and its correct placement in relation to water sources, and b) identify households as potential constructors of latrines.

3. Conduct a workshop of the village mothers to a) demonstrate the preparation of ORS or b) show that water can be used for healing.

4. If there is a water well, bring the children in the community to the well site and discuss proper well maintenance and care.

5. Organize a youth health brigade to promote communal sanitation as part of community health action.

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Appendix 1 Community Nutrition Survey

Name of Interviewer _____
Primary School _____Date_____

Household number _____
Name of Household Head: _____ Village _____
Age: _____ Occupation: _____ Chiefdom: _____
Total number in household: _____
(persons eating from the same pot)
Number of wives: ___ Number of children to age 5: ___
Number of children 6 - 12: ___ Number of children 13 and above ___

(Check the corresponding answer)

Part I - Information on Dwelling

Condition of house: Walls: _____ Mud _____ Cement _____ Wood
Floors: _____ Mud _____ Cement ____ Wood
Roof: _____ Palm branch _____ Zinc/galvanized iron
Latrine: ___ None ___ Poor condition ___ good condition
Kitchen: ____ open outdoor ____ shed ____ Inside house
General home sanitation: _____ poor _____ fair _____ good
Water source: _____ swamp _____ spring _____ pipes _____ well

Part II - Nutrition and Health Practices

Respondent: _____ Mother _____ Caretaker of child
Tribe of mother _____ Religion _____
1. When did you start breast feeding?
   Immediately after birth _____ within first two days _____
   Within the first week _____ after the first week _____
   Not at all _____ Reason _____
2. Give the age when other foods are given to the child apart from breast milk: (Specify the food)
   Age in months _____ food _____
   Age in months _____ food _____
   Age in months _____ food _____
3. At what age did you (or will you) stop breast feeding the child? _____
   Why? _____ Child's age _____ new pregnancy _____
   _____ I have bad milk _____ no milk produced _____
   _____ Illness of mother
4. Do you breast feed now? _____ Age of child _____
   What foods did you give yesterday to the child? _____
5. What did the children below five (5) eat yesterday?
   breast milk _____ cassava/gari _____ palm oil _____
   rice pap _____ plantain _____ fruit (specify) _____
   cooked rice _____ Yam/sweet potato _____ bread _____
   fish _____ beef _____ eggs _____
6. How many times did your child/children eat meals yesterday?
   Once _____ twice _____ three _____ or more _____
7. What do they eat between meals? _____
8. Foods given to child sick with diarrhoea _____

9. Is there any food you should not give to your child? (food taboo)

Food Item	Reason
_____	_____
_____	_____
_____	_____
_____	_____

10. Have you brought children to any clinic? _____ Yes _____No
    Age _____ Why _____
    Age _____ Why _____
    Age _____ Why _____
11. Has any child been sick for more than 1 week continuously?
    _____ Yes _____No _____Age _____Type of illness
12. What is the frequent illness of the children in your household? (may refer to one or more children)
    Diarrhoea: ___ once month ___ twice/month ___ every week
    Malaria/Fever: _____once/month _____ twice/month
    ____ Once in 3 months ____ When was last illness ____ none
    Respiratory: ____once monthly ____ twice/month
    ____ Once in 3 months ____ none
    Parasitic worms: ____ past ____ presently
    Unidentified fever: ____ once monthly ____ twice/month
    ____ once in three months ____none
    Ulcers, boils, scabies: _____ past _____ present
    (encircle or underline)
13. Where do you get treatment for illness of the children?
    Home treatment ____ traditional healer ____ clinic ____
14. Describe home/traditional remedies you apply?
    diarrhoea _____ fever _____
    malaria _____ ulcers, scabies _____
    respiratory _____ parasitic worms _____
15. Any children who are deceased? (age 12 or below)
    Age _____ cause of death _____
    Age _____ cause of death _____
    Age _____ cause of death _____
    Age _____ cause of death _____
16. Are you willing to attend (mothers' workshops) on nutrition?_____ on sanitation/hygiene? _____
    child care? _____

Appendix II Nutrition Status of the Child

Name of Interviewer: _____
Primary School: _____
Village: _____ Date _____

(Clip this to the appropriate household of which he/she is a member. Use a separate sheet for each household)

1. Name of the child: _____ Sex _____ Age _____
   Arm circumference (if below five) _____cm.
   ____ well ____ borderline ____ undernourished
   Height/inches _____ Weight _____
   Cause of last illness _____ When? _____
   Colour of eye tissue _____ pale _____ yellow _____ rosy
   Observed physical aspect of the child _____
   What did this child eat yesterday?
   breast milk _____ cassava/gari _____ palm oil _____
   rice pap _____ plantain _____ fruit (specify) _____
   cooked rice _____ yam/sweet potato _____ bread _____
   fish _____ beef _____ eggs _____
   cooked green vegetables _____ raw vegetables _____
   margarine _____ other _____
   other _____

2. Name of the child _____ Sex _____ Age _____
   Arm circumference (if below five) ____ borderline _____ well
   _____ borderline _____ undernourished
   Height/inches _____ Weight _____
   Cause of last illness _____ when? _____
   Colour of eye tissue _____ pale ____ Yellow ____ rosy
   Observed physical aspect of the child _____
   What did this child eat yesterday?
   breast milk _____ cassava/gari _____ palm oil _____
   rice pap _____ plantain _____ fruit (specify) _____
   cooked rice _____ yam/sweet potato _____ bread _____
   fish _____ beef _____ eggs _____
   cooked green vegetables _____ raw vegetables _____
   margarine _____ other _____

Appendix III Mothers' Workshop in Nutrition

Nutrition, Health and Environmental Sanitation Practices

A. Mother's responses _____ No. of respondents

B. Children's responses _____ _____

(school) (class) (No. of respondents)

		Yes	No
1.	Drinking boiled and cooled water	_____	_____
2.	Brushing the teeth everyday	_____	_____
3.	Rinsing the mouth after eating sweets	_____	_____
4.	Keeping the nails trimmed and clean	_____	_____
5.	Using a dust bin to throw wastes	_____	_____
6.	Including raw vegetables in the diet	_____	_____
7.	Including seasonal fruits in the diet	_____	_____
8.	Washing the fruits and vegetables before eating	_____	_____
9.	Eating all raw foods without washing	_____	_____
10.	Buying foods/eatables exposed to flies	_____	_____
11.	Keeping the surroundings clean	_____	_____
12.	Using the latrine for bowel movement	_____	_____
13.	Washing hands after coming from the toilet	_____	_____
14.	Washing hands before handling or preparing foods	_____	_____
15.	Bathing or washing body daily	_____	_____
16.	Covering trash in the back yard	_____	_____
17.	Using food covers to prevent files	_____	_____
18.	Drying clean plates or utensils in the sun	_____	_____
19.	Hanging clothes on a line or stick to dry	_____	_____
20.	Covering with soil, faeces in the compound	_____	_____
21.	Defecating in the bush	_____	_____
22.	A backyard garden provides some food to eat	_____	_____

_____

Name of Trainer/Interviewer

Appendix III (cont'd) Mothers' Workshop in Nutrition

Mother's Workshop Pretest

No. of participants _____ Location _____

(Read/translate the contents of each item and with a show of hands, tally their responses opposite the item. Respondent may raise the hands more than once.)

1. The most common illness that results from drinking contaminated or unsafe water is:
   a) blood poisoning -
   b) diarrhoea -
   c) fever -

2. Foods that are not washed very well or not cooked properly can be the cause of:
   a) parasitic worms -
   b) diarrhoea -
   c) fever -

3. When diarrhoea does not stop, the child or baby
   a) loses weight
   b) loses water in the body
   c) may die

4. Clean water can be used to prevent or cure illnesses such as:
   a) fever -
   b) skin diseases -
   c) run-belly -

5. Insects (flies, mosquitoes) and rats can also be carriers of diseases. What are these diseases?
   a)
   b)
   c)

_____
Name of Trainer/Interviewer

Appendix III (cont'd) Mothers' Workshop in Nutrition

Lesson 1 Clean Water for Health

Purpose:	To prevent diarrhoea, worms, and gut infections with the use of boiled water. To recognize signs of dehydration
Materials:	Posters showing boiling water, filtration and storage of water bucket with a cover clean piece of white material Posters showing the transmission cycle of water-related diseases Picture of a dehydrated child and sick persons
Presentation:	Greetings, prayers, introduction, recognition of participants
1. RECALL	The problem of high incidence of diarrhoea. Get the group interest by showing pictures of sick people and ask what they seem to be suffering.
2. ASK	Do you know that some of these illnesses are caused by using unclean or contaminated water? Show poster on transmission of water borne diseases.
3. TELL	That unboiled water can cause diarrhoea, worm infections and many other diseases.
4. ASK	What happens when they have run-belly. Do they know anybody, especially a child who had died from run-belly?
5. EXPLAIN	Dehydration as an effect of diarrhoea. Show poster of dehydrated child. Compare dehydration to a dried-up plant.
6. ASK	Why do people need to boil their water?
7. SHOW	The way water is filtered and stored. (Use bucket and piece of cloth)
Summarize:	1) Let the participants describe how improper disposal of excreta, i.e. in rivers, in bush, etc will contaminate the water. 2) Ask why boiling water to drink prevents diseases. 3) What happens when children have run-belly over 2 to 3 days? 4) Do the participants recognize or know about dehydration?

Lesson 2 Water for ORS

Purpose:	To demonstrate treatment of diarhhoea and dehydration by use of Oral Rehyration Solution (ORS)
Materials:	Salt, cube sugar, teaspoon, bottle caps, boiled water Clean pint (beer) bottles, plastic bottle (Tutik bottle) Poster of foods to give to child with diarrhoea Posters on faeces - disease - sanitation relationship; dehydration and insects as vectors

Presentation:		Greetings, prayers, introduction, recognition of participants
1.	REVIEW	Why it is necessary to boil drinking water.
2.	ASK	What are the causes of contamination in water?
3.	SHOW	a) Poster about faeces as a source of contamination; unprotected water and foods from insects and rodents b) Poster showing causes of run-belly (flies on milk bottle or foods); dirty hands touching baby's foods; child playing on soil and touches his mouth with dirty hands)
4.	ASK	When a child or infant has run-belly, how many bowel movements are experienced?
5.	SHOW	Poster of foods the child may eat.
6.	TELL	When run-belly continues for 2 or 3 days, the child may have fever, and you may need to bring the child to a clinic.
7.	SHOW	Picture of a dehydrated child
8.	EXPLAIN	The signs of dehydrated child
9.	ASK	Why does the child "dry up" like a plant? (Compare a plant without a water to a child losing "water in run-belly.)
10.	SHOW	The use of ORS to prevent dehydration. Compare ORS with watering plants to prevent them from drying up)
11.	DEMONSTRATE	The preparation of ORS SING-A-LONG the refrain on the ingredients for ORS

Lesson 3 Healing with Water

Purpose:	To help village mothers to learn the following:- a) That soap and clean water can be used to wash wounds, skin infections, rashes, snake and dog bites b) Warm water can be used for bruises, insect bites, stings, etc. c) Salt and water can be used for mouth gargle for mouth blister and sore throat d) It is necessary to always wash vegetables and fruits before eating. e) Inhalations of warm vapours can relieve the following illness:- cough, asthma, bronchitis, and whooping cough
Materials:	Flip chart titled "Healing with water".
Presentation:	Greetings, prayers and recognition of participants
1. ASK	If anybody in the group had occasion to use water for healing.

2.	REMIND	The importance of water in nutrition, i.e., drinking plenty of clean water during fevers, ORS during diarrhoea, water to make soups and sauce palatable and water to wash fruits and vegetables.
3.	SHOW	Each picture in the flip chart and ask them for the message.
4.	EXPLAIN	When necessary the answers to their questions.
5.	EMPHASIZE	The need to follow up with visits to the dispenser or to the health clinic when the illness is not relieved.
6.	SUMMARIZE	a) Using water for preventing illnesses b) Water for fevers, sore throat c) Water for bruises, cuts and sores, coughs and sore throat and for constipation

Lesson 4 Healing with Water (cont'd)

Purpose:	To demonstrate the use of water to treat high fever
Materials:	Sponge or towel, container, luke warm or cold water
Presentation:	Greeting, prayers and recognition of participants Ask them how they detect high fever. What do they do as a form of treatment?
1. TELL	The the dangers of high fever, i.e. leading to death if the appropriate measures are not taken immediately like a tree being burnt by fire.
2. ASK	The way the group gives treatment for high fever
3. SHOW	Measures taken to reduce high fever e.g., bathing the child, sponging with a cloth or towel and drinking plenty of fluid
4. LISTEN	To their questions and explain the immediate drying to prevent chills.
Summarize:	Main points: (a) The temperature if not reduced, will cause the death of the child. (b) It can be reduced by the use of water: by sponging towel or bathing the child and drinking plenty of fluid (c) Take child to the dispenser if the fever does not decrease.

Lesson 5 Supplementary Foods for Infants

Purpose:	1. To show the importance of weaning foods 2. To illustrate the foods the infant needs 3. To demonstrate the preparation of weaning foods

Materials: Posters
Ingredients: (Soft rice, already cooked, groundnut paste, cooked beans, palm oil, groundnut flour, rice powder, beniseed, fish powder, etc.)
Measuring equipment and storage container

Presentation: Greetings and recognition of participants,
Review of ORS song.

1. ASK — How many have infants 2 years and below what foods are given to the child? Is breast milk sufficient?

2. ACKNOWLEDGE — The value of what they do.

3. ASK — If they know the importance of these foods.

4. SHOW — The poster of foods an infant needs. Ask: can the infant eat these foods? How can we make these foods easy to eat for the infant?

5. BRING — To the table the ingredients and the measuring cups, etc.

6. TELL — The mothers that you will show three porridges that can be given to the baby.

7. SHOW — The proper thickness of the soft cooked rice, i.e. like "borongo" or "pota pota" as the main ingredient for the recipes.

8. DEMONSTRATE — The process of adding to the body building foods -- ground-nuts, fish and beans to the soft-cooked rice.
   a) to 3 heaping (tomato paste) tins of soft cooked rice, add 3 heaping soup spoons of groundnut paste (stir and cook to desired warmth)
   b) to 3 heaping tins of soft cooked rice, add 2 heaping tins of mashed beans, and add 3 small spoons of palm oil. (Cook well)
   c) to 3 heaping tins of soft cooked rice, add 2 soup spoons of fish powder and 3 small spoons of palm oil (cook to desired thickness and warmth)

9. ASK — What do they find in "beniseed mix":

   Mix: 2 cups flour
   1/3 cup groundnut powder
   1/4 cup beniseed flour (pounded from seed)

   Addjust before preparing for the infant: fish meal, and few drops of palm oil

   Before feeding, measure 1 or 2 tomato paste tin of the mix and fish meal. Add 1/2 cup water and cook well, adding more water to the right thickness, and the palm oil before spoon feeding the infant.

10. SUMMARIZE: a) the way mothers make their own weaning foods.
    b) the importance of supplementary foods for growth.